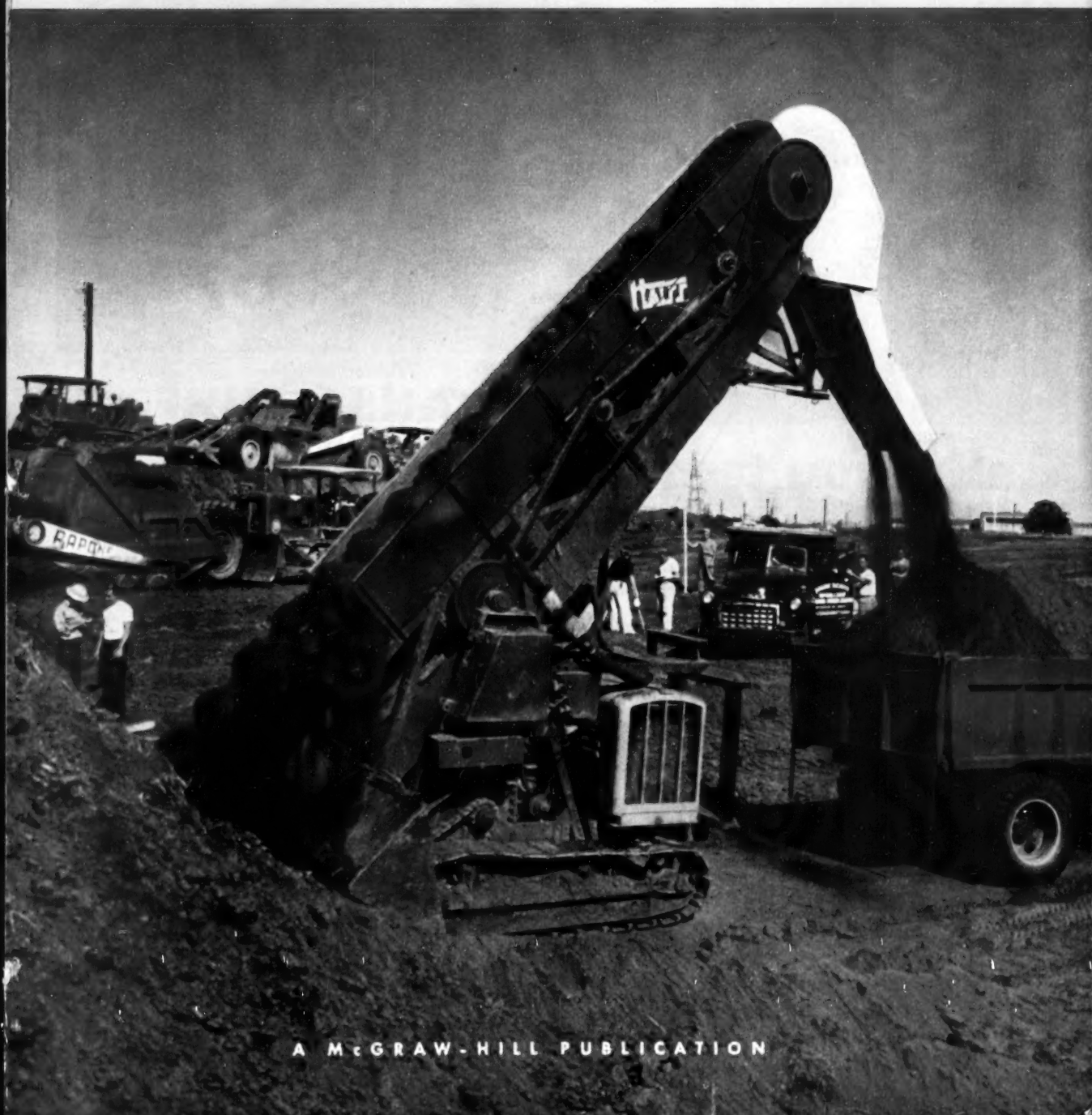


50 CENTS

# CONSTRUCTION

## METHODS AND EQUIPMENT

September 1954



A MCGRAW-HILL PUBLICATION

# Weights half a ton less!

than most mixers  
of equal capacity

Mounts on  
lower-cost,  
more-maneuverable  
truck chassis

Hauls  
more payload  
— less non-productive  
dead-weight

Costs less  
to operate  
and maintain



There's a Le Roi-Transo  
Mixer for every job.  
Available in capaci-  
ties of 3, 4, 4½,  
5, 5½, 6, 6½ yds.

## LE ROI-TRANSO MIXERS

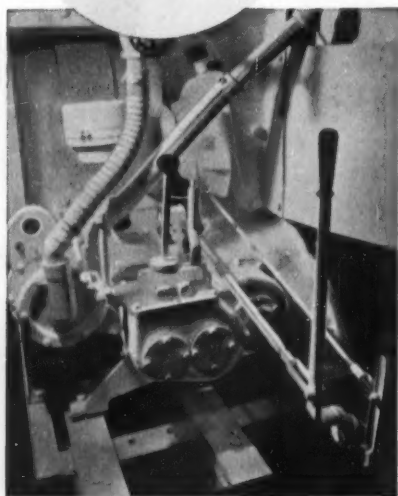
WHEN you can save as much as 1,000 pounds of dead-weight — haul bigger legal payloads — pay less for your truck chassis — make more round trips daily — and cut costs all around — mister, you've got yourself a real mixer. And that's just what you get, when you get a Le Roi-Transo Mixer!

Its patented direct drive is one reason why a Le Roi-Transo Mixer delivers top money-making performance. It eliminates heavy chains, ring gears, sprockets, and bevel gears — and the weight and maintenance troubles that go with them.

And it includes a 2-speed, planetary, reversing-type transmission that gives you shock-free starting and fast discharge-reversing under full load — *without clutching*.

But that's not all. A Le Roi-Transo also gives you unequalled mixing action . . . 40% faster loading . . . smooth, speedy discharging — even of slump concrete . . . and many other features.

Yes, sir, feature for feature, a Le Roi-Transo is your best mixer buy. Ask your Le Roi-Transo distributor to show you. Or, write for bulletin.



Patented planetary reversing-type transmission provides two agitating and discharge speeds — with a low mixing speed for long hauls that saves engine wear and tear.

TD-13



### LE ROI COMPANY

A Subsidiary of Westinghouse Air Brake Co.

TRANSO DIVISION

MILWAUKEE 14, WISCONSIN

Plants: Milwaukee • Cleveland —  
Greenwich — Dunkirk, Ohio •  
Coldwater, Michigan.



# B.F. Goodrich



## Tires work at lower cost per mile, construction company reports



**PAYLOADS UP TO 25 TONS** are carried by B. F. Goodrich Universals on this Kansas City bridge approach job. Wedge-shaped cleats defy sideslipping, give traction in reverse as well as forward.

**T**HE Clarkson Construction Company scraper above is at work on the south approach to a new bridge over the Missouri River. The bridge will connect Kansas City with North Kansas City, is typical of the heavy construction work done by this firm's 100 units in the states surrounding Missouri.

Clarkson uses B. F. Goodrich tires for this rugged service, prefers them because they cut costs per mile.

### All-Nylon cord body

Universal tires, sizes 12.00 and larger, are built with an *all-nylon* cord body that cuts costs because it withstands double the impact of ordinary cord materials, resists heat blowouts and flex breaks.

Under the tread is the B. F. Goodrich shock shield. Layers of strong nylon cords stretch together to protect the tire body from shocks and bruises.

You save 4 ways: (1) more recappable tires and more hours of service per recap (2) more original hours of service (3) increased bruise resistance (4) less danger of tread separation. You pay nothing extra for the patented BFG shock shield.

See *all-nylon* tires at your nearby B. F. Goodrich retailer's (smaller sizes in *all-nylon* or rayon construction). The address is listed under Tires in the Yellow Pages of your phone book. Or write: The B. F. Goodrich Co., Tire & Equipment Division, Akron 18, Ohio.

**Specify B. F. Goodrich tires when ordering new equipment**



Why buy all this ↓



when you need only this ↓



Hundreds of dollars are being saved yearly by users of Bullard First Aid Kits. Bullard's wide selection of standard kits planned to meet the accident patterns of specific industries means you get the benefits of custom designed kits without paying premium prices. Write today for the new Bullard First Aid catalog . . . discover how you can save spoilage and waste resulting from unused and unnecessary first aid supplies.

Send me your new folder, "Custom Designed First Aid at standard prices."

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CITY.....ZONE.....  
STATE.....

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BULLARD  
IN SAFETY**

Volume 36  
Number 9

# CONSTRUCTION METHODS AND EQUIPMENT

Established 1919

September 1954

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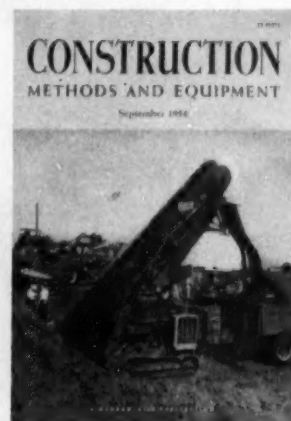
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## On the Cover

Hicksville (N. Y.) Contractor Rapone & Son uses this Pettibone Mulliken Haiss bucket loader, powered with a GM diesel engine, to load out loose fill material into waiting trucks on his busy earthmoving project. The owner switched to diesel power on this and another 3-cu yd-per-min loader, to match the GM diesel power he uses in his crawler-type tractors.

**EARTHMOVING REPRINTS:** You can get reprints of CM&E's popular series of articles entitled "Earthmoving—An Art and a Science." Here are 64 pages of valuable excavating and earthmoving data, prepared by authorities in their field, useful to contractors, estimators, foremen and operators. Single copies are available at 50c each; 10 copies or more at 35c each.

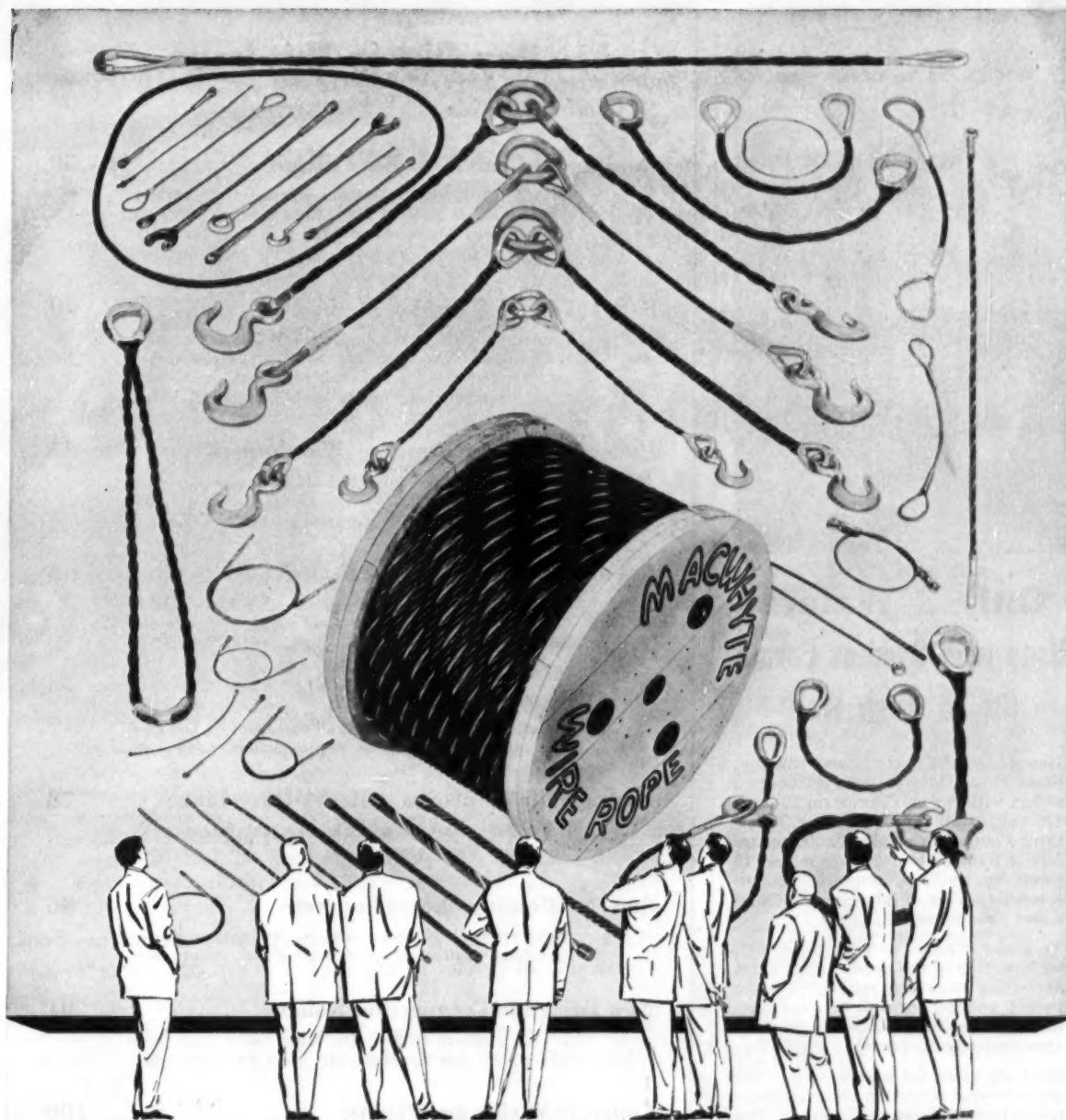
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All these products are available from Macwhyte Company and distributors. Recommendations will be gladly furnished. A Macwhyte distributor will be pleased to serve you or write direct to:

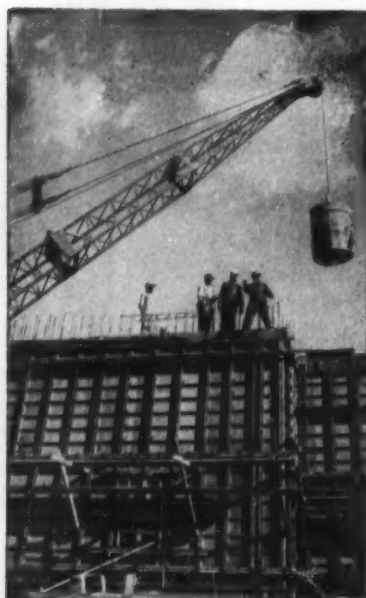
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## Only 3 Walers Used with Symons Forms On 16' High Wall

Henry Carlson Construction Company, Sioux Falls, South Dakota, used only 3 walers with Symons Forms on 16' high 12" thick wall for City Water Treatment Plant, Sioux Falls. 10,000 square feet of Symons Panels were reused 12 times on the job, resulting in considerable saving of labor, material and a fast forming schedule.

To make it easier to pour these high walls certain of the upper panels were, at regular intervals, raised 1 foot to permit pouring through side openings for the first 8 feet of concrete. This avoided dropping concrete from the top.

Send the plans for your next job and get complete layout and cost sheets—no obligation. Symons Forms, Shores and Column Clamps can be rented with purchase option. Paid rentals apply on purchase price.



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 Address \_\_\_\_\_  
 City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## Pay Dirt in This Issue

September, 1954

### Equipment Geared for Big Fill Job ..... 50

Fleets of earth- and rock-moving equipment are working night and day to build the 7,000,000-yd Cherry Valley Dam in California. Six-yd shovels, 30-yd trailers, 4-in. blast hole drills, and 100-ton rollers head the equipment list.

### Better Tunnel Clean-Up Methods ..... 70

Removing track and loose muck from the invert of a tunnel is a tough job. The Shea Company of Los Angeles worked out an efficient and economical method on the Cajalco tunnel, incorporating Flocrete method of tunnel lining.

### Unusual Construction for Warehouses ..... 54

Have you ever been tempted to build a concrete warehouse using highway equipment and methods? A Southern contractor firm did just that, and saved money. Here's how.

### Is Your Maintenance This Good? ..... 63

Topnotch equipment maintenance facility keeps Kiewit-Condon-Cunningham's earthmovers rolling profitably and safely on Ohio Turnpike job. Simple tricks help do it.

### A Four-Day Quickie ..... 60

Versatile earthmover performs all operations on fast gasoline tank renewal job as service station carries on.

### Hydra-Matic Improves a Heavy-Duty Line ..... 78

Hydra-Matic transmissions are now available for big trucks. They offer better economy and higher driver efficiency.

### Steel Scaffolding Shores Concrete ..... 86

Quickly assembled steel scaffolding for concrete shoring is helping contractors speed pouring and reduce costs.

### New Design in Compaction Rollers ..... 91

It's not a smooth or sheepfoot roller, but a 32,000-lb, 4-wheel giant that uses 188 pads to get excellent results.

### Concrete Mixing and Placing ..... 100

Controls for a large batching plant speed weighing, increase accuracy, and reduce the labor force.

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**NEXT  
MONTH**

By mounting a drilling mechanism on top of a crane, a contractor has developed a revolutionary drop-hammer that strikes 50 times a minute and releases nearly 25,000 ft-lb of energy per blow. It requires no air or steam.

# MOVING A MILLION YARDS A MONTH GETS JUMP ON KANSAS' TRICKIEST RIVER!



**GOODYEAR  
WAS THERE!**

THE KIRWIN DAM, now heading for completion 13 months ahead of schedule, is not our nation's largest—but the Solomon River, which it harnesses at last, could well be America's most fiendishly treacherous dam site! But neither dust nor deluge, seepage nor high winds nor low visibility—nor 15,000-yard landslides (as shown above)—can keep these steeped-in-experience, veteran contractors from hitting their breakneck dirt-moving pace of more than a million yards a month!



*Trained experts periodically examine giant tires that keep over 100 pieces of equipment rolling double shifts.*

Goodyear was there with precisely the *right* tires to take on the roughest jobs — and live to tell the tale of *savings* in time and equipment!

You too will find Goodyear "there" — with tires more enduring than ever—for they're made with Goodyear's new, Triple-Tempered (3-T) cord.

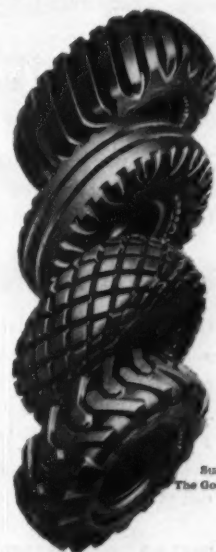
This exclusive patented 3-T process keeps Nylon or Rayon cord at its most bruise-resistant, heat-resistant point. It controls tire growth, reduces cracking, tread and body failures to new LOWS, keeps tires in shape for re-lugs and recaps. Remember, only Goodyear can give you 3-T Nylon or Rayon. Remember it next time you specify *any* type tire!

Goodyear, Truck Tire Department, Akron 16, Ohio

**FOR EACH JOB, THERE'S A COST-CUTTING GOODYEAR TIRE!**

# GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND



**HARD ROCK LUG**

**HARD ROCK RIB**

**ALL-WEATHER**

**SURE-GRIP**

Sure-Grip, All-Weather—T. M.'s  
The Goodyear Tire & Rubber Company,  
Akron, Ohio

*And Remember*

**NOTHING ELSE  
TAKES IT LIKE  
3-T NYLON**



Economy in construction is important . . . so important, that Builder, Designer and Owner are analyzing construction costs realistically.

**the NEW**  
**ROOSHOR**  
(EXTENSION TYPE)  
gives greater job economy!

**it's NEW**  
**THE ROOSHOR**  
(WITH EXTENSION HEAD)

The new Rooshor, *extension type*, 8 ft. to 14 ft. (full 6 ft. adjustment) can be used as a flat-head shore, a male-head shore and as an extension shore by merely inserting any length S4S 4 x 4 into the steel head. It is instantly adjusted to "hairline" accuracy and has no pins or screw adjustments to become clogged or cause needless delays. Wooden upper members permit easy fastening of lateral or diagonal bracing.

**THE STANDARD ROOSHOR**  
(WITH WOOD HEAD)

The adjustable shoring device offering instant and accurate adjustment within the range of three sizes: 8 ft. to 14 ft.; 7 ft. to 13 ft.; and, 5 ft. to 9 ft.

**ROOS COLUMN CLAMPS**

Consists of two identical hinged units that eliminate waste time in fitting and adjusting . . . foolproof . . . no wrong way to put them on. There are no loose parts to cause needless delays and a hammer is the only tool needed.



**"USED BY CONTRACTORS COAST-TO-COAST OVER 35 YEARS"**

Rooshors and Roos Column Clamps are available for rental with purchase option from warehouse stocks in principal cities. Write for Bulletin 254.

**BAKER-ROOS, INC.**  
402 WEST McCARTY STREET • INDIANAPOLIS 6, INDIANA

## ★ JOB TALK ★

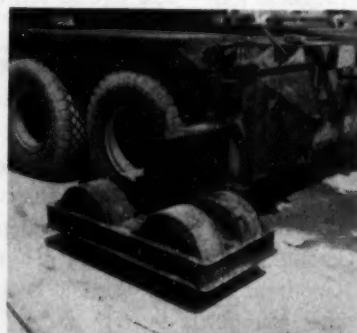
### ... About Methods



#### Building Foundation Completed in 16 Hr

Thirty-seven foundation footings from 8 to 14 ft deep were bored and filled with concrete in 16 working hours on a super-market job in Paoli, Pa. Hughes-Foulkrod Co. of Philadelphia, bored 3-ft 2-in. dia holes and belled them 5 ft at the bottom.

The contractor used a Gar Wood Foundation Borer to dig the holes. Cutting vanes at the bottom and sides of the bucket guided soil into the bucket, which was emptied by raising, swinging away from the hole, and opening bottom doors and bellling vanes. Ready-mix concrete was chuted directly into the holes.



#### Rolling Outrigger Saves Set-up Time

Extracting and blocking up outriggers on a truck-crane prior to each lifting operation is a necessary but time-consuming job. When the crane does considerable mov-

(Continued on page 12)



# REACH FARTHER... DIG DEEPER!

Since Northwest built the first full-revolving Pullshovel, steady improvement in design and operating characteristics have increased the versatility and use of this machine. Today improved boom and dipper design have further extended operating ranges for still greater digging ability as to depth and reach.

If your problem is a Pullshovel problem by all means get the latest information on the Northwest.

**NORTHWEST ENGINEERING COMPANY**  
1503 Field Bldg., 135 South LaSalle Street, Chicago 3, Illinois



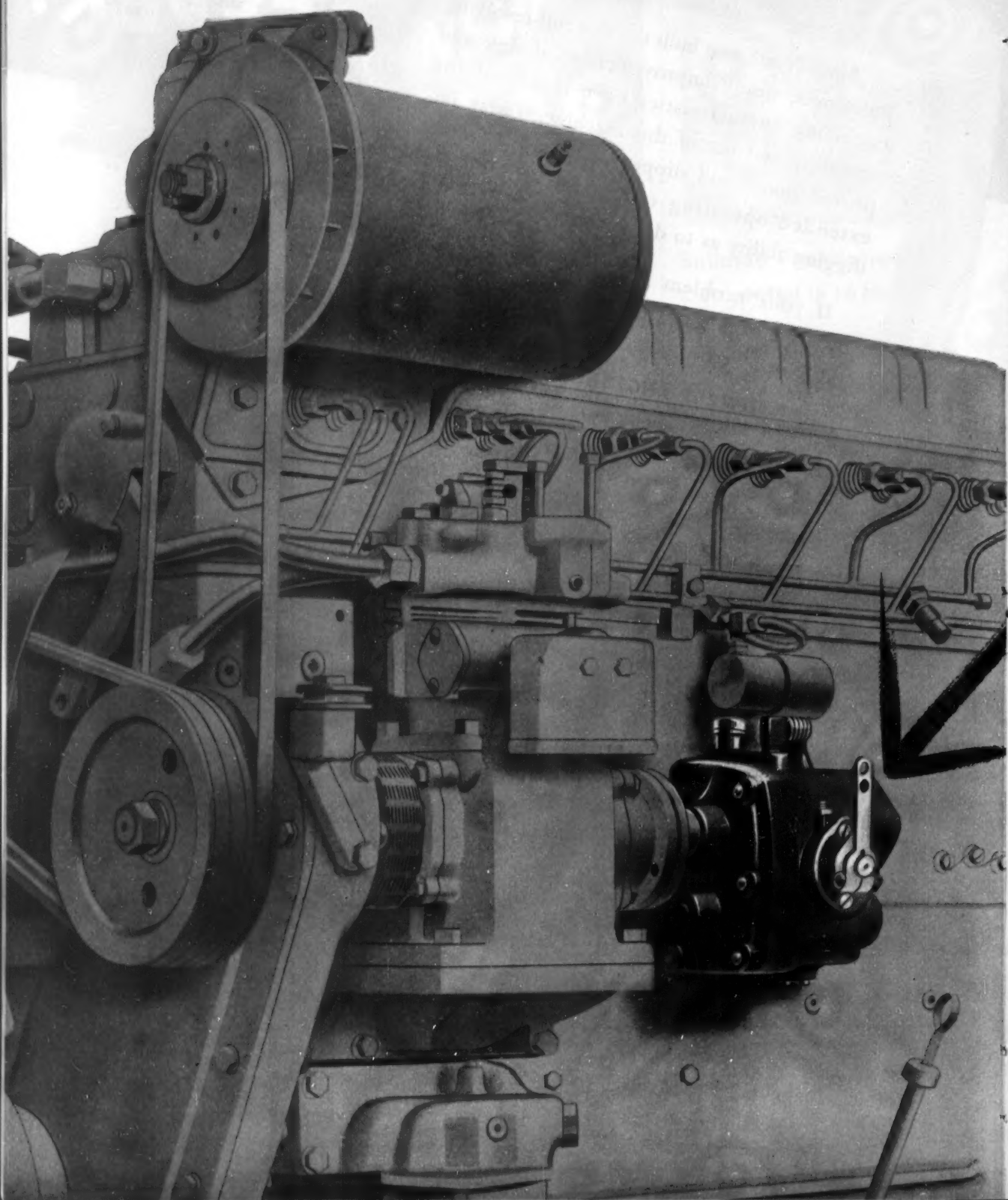
## NORTHWEST

CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

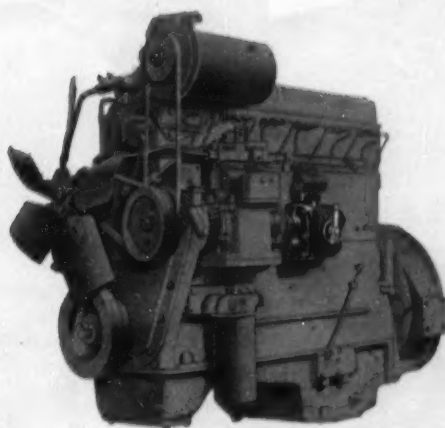
Has  
Your Shovel  
Stood the

**ROCK  
TEST**

# Cummins new, exclusive diesel



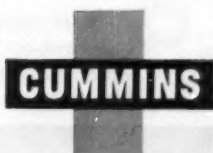
# **fuel system needs no specialists!**



**PT Fuel System standard on all models...simpler to work with than gasoline carburetion and ignition**

- Fuel system servicing costs become negligible.
- Compact pump weighs only 13 pounds—system has no fuel racks to adjust . . . no check valves, metering plungers, discs or floats—pump not timed to engine.
- Fewer parts than any fuel system on any heavy-duty engine.
- Adaptable to all Cummins Diesels built since 1932.

Write for your copy of descriptive folder  
"Cummins PT Fuel System."



## **Cummins**

Engine Company, Inc., Columbus, Indiana

*Leader in rugged, lightweight, high-speed diesels (60-600 h.p.)*



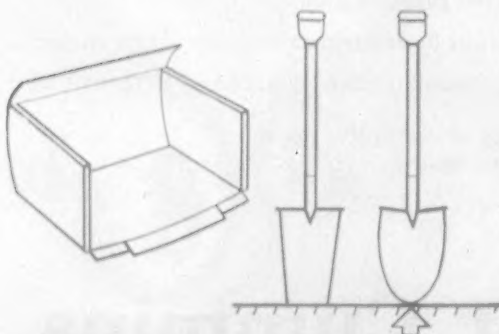
**MR. CONTRACTOR:**

*Compare these dirt-*



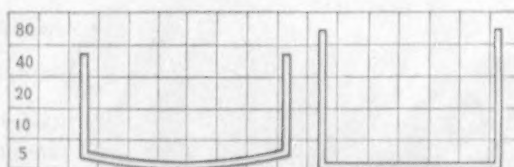
#### PENETRATES FASTER

Curved and offset cutting edge on Allis-Chalmers Motor Scrapers concentrates all the horsepower on the center section during initial penetration. The penetrating ability of a round-end spade helps illustrate the practical soundness of this Allis-Chalmers design.



#### LOADS FASTER

Low, wide bowl plays an extremely important part in ease of loading. Tests have proved that loading resistance is largely determined by the height to which the load is built. New dirt entering the bowl must lift the load directly above it in order to make room for itself.



This chart shows how loading resistance continually increases as the load builds up . . . how the lower, wider bowl of an Allis-Chalmers Motor Scraper requires less time and power to get the same yardage.

**PERFORMANCE MAKES DOLLARS**

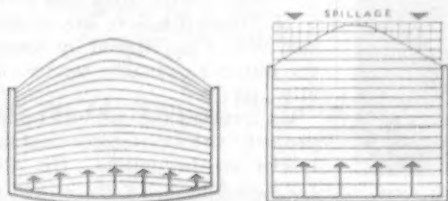
# moving features before you buy

Check over these Allis-Chalmers TS-200 Motor Scraper features point by point. See for yourself the sound reasoning behind its design. Then let your Allis-Chalmers dealer show you one at work. Compare it feature for feature, yard for yard and dollar for dollar with any other machine in its class. We believe you'll agree that an Allis-Chalmers Motor Scraper is the *number one* earth-moving value.

**ALLIS-CHALMERS**  
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

## HEAPS AUTOMATICALLY

The combination of slightly deeper center cut and correctly angled cutting edge shapes the load as the scraper fills. The greater volume of dirt flowing into the center of the bowl "boils" forward, to the rear and to the sides, producing an automatically heaped load without excessive spillage.



These diagrams show how an automatically heaped load avoids costly spillage even though the center is built up above the sides of the bowl.

## SPREADS EVENLY

Forward movement of ejector is timed with lifting action of apron, which provides a continuous flow of material to insure a smooth, even spread.



High apron lift prevents any possibility of material jamming. Even when loaded from overhead, anything that can be put into the bowl can be easily ejected.

**WHEN DESIGN MAKES SENSE**

## LA ENCINA . . . her job:



**"HOLD BACK THE OCEAN!"**

Right now the La Encina, a 12-inch hydraulic dredge, is moving  $\frac{3}{4}$  million cu. yds. of sand through a 3000-ft. spoil line at the rate of up to 400 cu. yds. per hour—to create a tidal basin for condenser cooling water.

The project is part of the multi-million dollar expansion program of San Diego Gas and Electric Company at Encino, California.

The same dredge will be used for maintenance of the tidal basin, removing an estimated 50,000 cu. yds. of sand and silt accumulation each year.

If you have any river, canal, lake improvement or drainage project, let us share our nearly half a century of dredge experience with you. Write for new 16-page catalog, "Dredges."

**We design and manufacture hydraulic, dipper and clamshell dredges.**



One of four ASD electric-powered 15-inch dredges on Schuylkill River project.

A highly efficient ASD 8-inch diesel-powered dredge pumping "mill scale."



**For complete information on your dredging problems write, call or wire.**

**AMERICAN STEEL DREDGE CO. INC.**

P. O. BOX 570, FORT WAYNE 1, IND.

## JOB TALK . . . Continued from page 6

ing around, many hours can be lost.

Leake & Nelson Inc. of Bridgeport, Conn., faced that problem when they were called upon to erect tilt-up wall panels at the new Regional High School in Woodbridge, Conn. Because the crane was able to maneuver mostly on the level surface of the floor slab, the contractor rigged up a rolling outrigger that cut set-up time to a minimum.

The outrigger consisted of four steel wheels fastened to a frame of welded steel channels. The wheels were capped with Goodyear solid tires. A ball-and-socket joint connected the wheel frame to the threaded rod on the outrigger. Where the bearing surface was smooth, the rolling outrigger was a real time-saver.



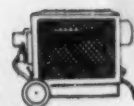
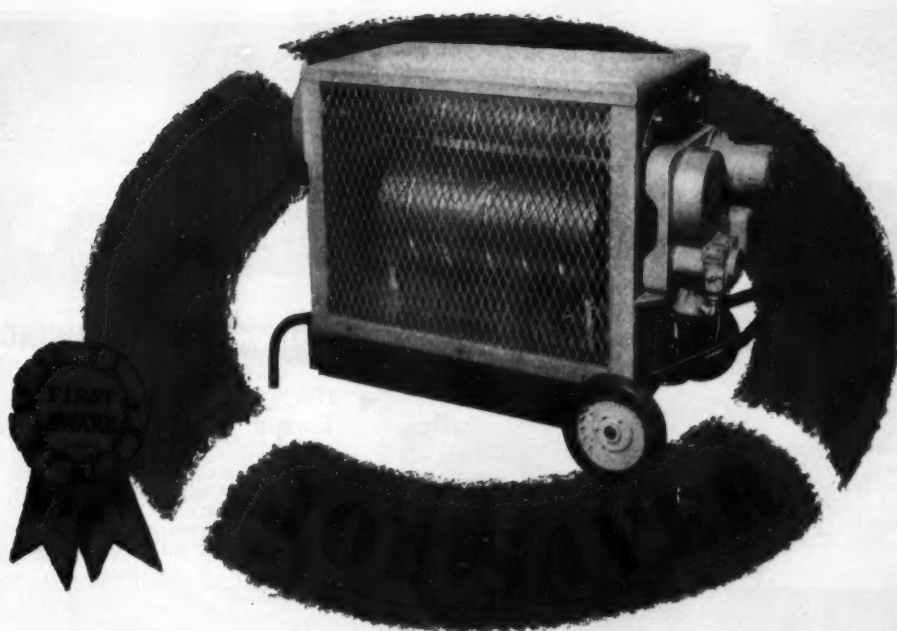
## Fork Truck Reduces Number of Mason Tenders

By using a fork-lift truck to supply masons with brick and mortar, J. H. Findorff & Son, Inc. of Madison, Wis., has reduced by one-half the number of mason tenders usually required.

On a recent commercial building project, the contractor unloaded bricks on to pallets. His Clark 2,000-lb fork truck stockpiled pallets at several locations so that it could be used to supply masons quickly. Each pallet held about 350 bricks. By using a pallet-type box he also carried mortar. Granite blocks weighing up to 1,000 lb were also transported around the job by the lift truck, without causing any defacing of the stone.

(Continued on page 16)





Model PR  
For Personnel Heating  
189,000 B.T.U. per hr.



Model RFS  
168,000 B.T.U. per hr.



Model AS  
189,000 B.T.U. per hr.



Model AAS  
189,000 B.T.U. per hr.



Model BS  
Fully Automatic  
350,000 B.T.U. per hr.



Model ID  
Forced Air—up to  
420,000 B.T.U. per hr.

## Whenever . . . wherever Heat is needed!

Work stoppages due to lack of heat can be mighty costly . . . especially in winter when controlled heat is required in large volume . . . instantly. Be prepared for cold weather with real "job savers" — Silent Glow Radiant Portable Heaters.

Wherever — whenever — quick, portable heat is required, you'll find one of these versatile heaters the ideal first choice to do the job . . . safely . . . cleanly . . . and efficiently at lower cost, too. Write today for complete facts on the complete line of Silent Glow Portable Heaters.

### FIRST CHOICE ON THE JOB

- Provide more comfortable working conditions in warehouses, machine shops, on loading platforms and docks . . . for outdoor repair crews, etc.
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- And for a wide range of other applications where it is important to provide spot heat.

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RADIANT  
Portable Heat

ON THE JOB THE  
INSTANT YOU NEED IT!

To: THE SILENT GLOW OIL BURNER CORP.  
866 Windsor Street, Hartford 1, Conn.

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Name .....

Company .....

Street .....

City ..... State .....



## **PETTIBONE SPEEDALL**

### **FRONT END LOADER WITH TORQUE CONVERTER**

1 and 1½ CU. YD.

The brightest performance star of all front end loaders. Torque converter delivers more power, easier and faster, saves fuel, eliminates clutch replacements. Bucket, fork, crane hook, snow bucket and plow attachments.



## **PETTIBONE SPEED GRADER**

### *Eliminates the Weaknesses of All Other Graders!*

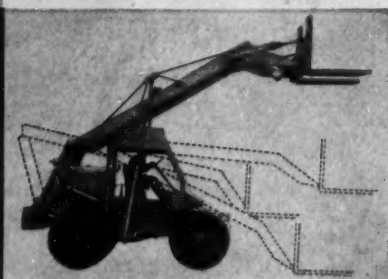
New records for power and low maintenance costs are the natural result of Speed Grader's exclusive features: Strongest frame, heaviest tandems, greatest circle power, most trouble-free hydraulic system. 5 sizes, 65 to 107.8 h.p.



## **PETTIBONE SPEED SWING**

### **180° Swing Loader with Torque Converter**

There's nothing like it! Loads front, left, or right without gee-hawing. The only loader for tight spots. ¾ and 1 cu. yd. buckets, fork, crane hook and snow bucket attachments interchangeable. A sister machine is the Speed Swing Yard Crane.

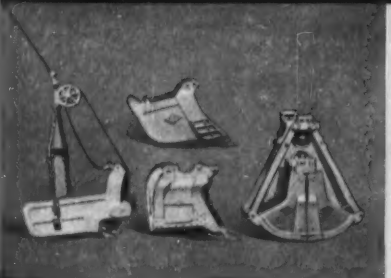


*A few of the over 70 basic products* **PETTIBONE** *manufactures for the construction industry alone!*

## **PETTIBONE CARY-LIFT**

### **The Loader with the R-E-A-C-H**

Another Pettibone exclusive! Ideal for soft terrain, it does the work of a fork lift, front end loader, grapple, crane, a clamshell, or bucket loader. It picks up, carries, lifts, and reaches 4' at all heights.



## **PETTIBONE SPEEDLOADER**

### **All-Purpose Loader**

**Cross Breed Feed** (illustrated) loads earth and aggregates, 5 to 8 cu. yds./min; snow, 10 to 20 cu. yds./min.

**Bucket Feed** loads from stockpiles and windrows, also digs, levels, mixes.

**Dragger Back Feed** swallows windrows faster than any loader made.



## **PETTIBONE BUCKETS**

### **PETTIBONE HAISS**

Pettibone and Pettibone-Haiss clam-shell buckets, dragline buckets, dipper buckets, and pullshovel dippers are recognized the world over for cutting strength and stamina. Over 65 styles and sizes.



## **PETTIBONE HAISS LOADERS**

### **Self-Propelled, Self-Feeding**

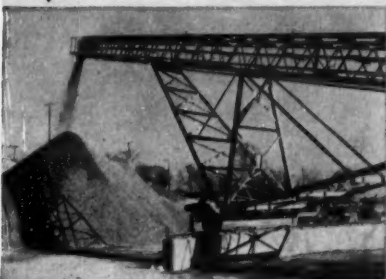
Long a standard for high capacity loading of crushed stone, gravel, sand, top soil, coal and snow. 22 models, with or without swivel belt conveyor, are available for every imaginable continuous loading job.



## **PETTIBONE UNIVERSAL** **PETTIBONE**

### CONVEYORS

One of the largest lines of conveyors, ranging from simple package units to mammoth coal and other material installations. There's a conveyor for every purpose, including a large number of feeders and car unloaders.

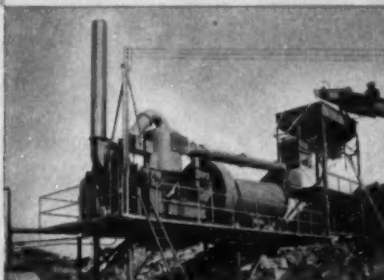


## **PETTIBONE UNIVERSAL**

### CRUSHING, SCREENING, WASHING PLANTS

**Stationary Plants**—Since 1906, Universal's rock and gravel plants, especially engineered for each installation, have been sought the world over.

**Portable Plants**—Universal offers the most complete line of rock, gravel and lime producing plants on the market.



## **PETTIBONE WOOD** **ROADMIXERS**

### Originators of Mix-In-Place Roadbuilding Equipment

Favored for low-cost highway, airport and parking construction. In one pass, picks aggregate cleanly off subgrade, mixes it with binder, lays uniformly mixed windrow. Also mixes cement with native soils, or asphalt with asphalt binders.

## **PETTIBONE UNIVERSAL** **ASPHALT PLANT**

Outstanding new Universal Asphalt Plant, semi-portable, batch type. Drier dust collector, pugmill and controls mounted on one compact frame. Features fast set-up, low operation and wide flexibility. 25 tons per hour capacity.



Illustrated here are but 12 of over 70 basic products for the construction industry Pettibone and its subsidiaries manufacture and sell. Counting various models and sizes, over 300 items comprise the extensive, versatile Pettibone construction equipment line, *exclusive of parts*. Pettibone and its subsidiaries enjoy 396 years of combined engineering and manufacturing experience in heavy goods. You can justifiably put your confidence in Pettibone equipment!

## **PETTIBONE**



MULLIKEN CORP.

Home Office: 4700 West Division Street  
Chicago 51, Illinois • SPaulding 2-9300

QUALITY SINCE 1880

## **THE PETTIBONE COMPANIES**

### A Team You Can Depend On

- |  |   |
|--|---|
| <b>Pettibone Mulliken Corporation</b><br>Chicago, Illinois     | <b>Johnston &amp; Jennings Company</b><br>Chicago, Illinois     |
| <b>Beardsley &amp; Piper</b><br>Chicago, Illinois              | <b>Cleveland Frog &amp; Crossing Company</b><br>Cleveland, Ohio |
| <b>Geo. Haiss Mfg. Company, Inc.</b><br>New York, N. Y.        | <b>Pettibone Wood Mfg. Company</b><br>North Hollywood, Calif.   |
| <b>Universal Engineering Corporation</b><br>Cedar Rapids, Iowa | <b>Pettibone Mulliken of N.Y.</b><br>Rome, New York             |
| <b>Hammermills, Inc.</b><br>Chicago, Illinois                  |   |

2 Million Sq. Ft. of Manufacturing Area + 76 Acres of Yard Space



Pettibone and Its Subsidiaries  
Are Primary Manufacturers  
of Heavy Equipment and Parts

56% of Pettibone Manufacturing  
Is For the Construction Industry!

- |            |  |
|------------|--|
| <b>56%</b> | <b>CONSTRUCTION AND MATERIAL HANDLING EQUIP.</b> |
| <b>18%</b> | <b>LABOR SAVING FOUNDRY EQUIPMENT</b>            |
| <b>18%</b> | <b>RAILROAD TRACK MATERIALS</b>                  |
| <b>8%</b>  | <b>OTHER PRODUCTS</b>                            |



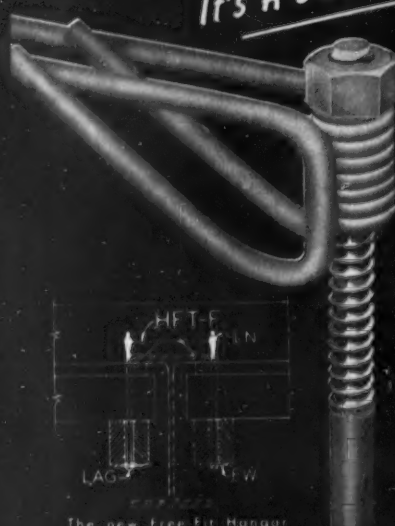
# TURN DECK FORM INSTALLATION RIGHT SIDE UP...

with

## Richmond's

# Free-Fit HANGER FRAME-TYS!

*It's A Switch for Safety's Sake!*



The new Free-Fit Hanger Frame-Tys is one of the many hanging systems initiated by Richmond. Others include the ty, hanger, Flange Hanger Saddles, Fascia Hangers and Wide Beam Saddles.

Working parts: Tylogs and flat washers are returnable for full credit. No Rentals are charged.

For our complete catalog, see SWEET'S Industrial Construction File 21R; Architectural File 21R.

MEMBER: Producers Council, Association of General Contractors, Associated Equipment Distributors, Reinforcing Steel Institute.

By turning the deck form hanging process upside down—or more correctly right side up, Richmond makes sure that all deck form installation and adjustment is done exclusively from above!

This means workers have only to bend down, rather than reach down under precariously. Richmond's free-fit hanger frame-ty is much faster and efficient, too!

With the lag nut above, forms are quickly tightened flush against the underside of the steel, insuring clean, leakage-free forms.

So, for safety and for speed, switch to Richmond's new free-fit hanger frame-tys!

**INSIST ON RICHMOND  
...AND BE SURE IT'S RICHMOND!**

Richmond

SCREW ANCHOR CO., INC.

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318 SOUTH FOURTH ST. • ST. JOSEPH, MO.

Send for new  
1954 Catalogue



## Plastic Tubing Reduces Electrocution Hazard

Plastic tubing placed over the upper 6 ft of the tall metal drive-bar on a power digger insulates the rig when working near electric lines. California Oregon Power Co. uses Westinghouse Micarta tube and holds it in place by a split steel band at the lower end. The tube extends above the drive-bar about 9 in.

## Orders Material By Radio in Crane

Radio in the operator's cab of a large Manitowoc crane played an important part in the construction of a harbor breakwater at Crescent City, Calif. LeRoy Smith, the operator who placed most of the rock used in the breakwater, maintained radio contact with the quarry five mi away and specified type and size of stone he needed, as the job progressed.

The contractor placed 110,000 tons of rock under an improvement program for the Corps of Engineers. Joint venture contractors were Macco Corp. (sponsor), Morrison-Knudsen Co., and River Construction Corp.



# ROCK RATED

to better your best production!

Pit a P&H 1055 against any comparable  $3\frac{1}{2}$  yd. machine and see how P&H takes over the production lead. And it *maintains* the pace day after day, under the toughest digging and loading conditions!

P&H years-ahead design and construction make the big difference. You get the extra strength of high-tensile alloy steels to withstand the pounding of repeated shock loads . . . the solid stability that lets you exert more power at tooth point. And only P&H has *Magnetorque* to swing you through five loads to the other man's four. It's the most dependable swing ever built — lasts the life of the machine!

Want the same outstanding features in a  $2\frac{1}{2}$  yd. machine? Ask us about the companion Model 955A.

with **P&H** **MAGNETORQUE\***  
ELECTRIC SWING

- 15-25% faster . . . . .
- 100% free of friction and wear!

\*T.M. of Harnischfeger Corporation  
for electro-magnetic type coupling.

**P&H** LARGE EXCAVATOR DIVISION  
**HARNISCHFEGER**  
CORPORATION  
MILWAUKEE 46, WISCONSIN

the **P&H** Line



TRUCK CRANES



DIESEL ENGINES



POWER SHOVELS



MOTORIZED ROLLERS



ELECTRIC HOISTS



SOIL STABILIZERS



WELDING EQUIPMENT



OVERHEAD CRANES

# *It's Your Business . . .*

## **Clark Offers a Lease-Purchase Plan For Equipment**

A NEW EQUIPMENT LEASE PLAN with or without option to buy, is available to you contractors. Clark Equipment Co., maker of the Michigan line of construction equipment, has come up with what it believes is the first lease-purchase plan of its kind in the construction equipment field.

It's different from other leasing plans because the manufacturer rather than the dealer handles the financing. The plan, with the option to buy, amounts to a no-cash-down, low interest way of buying Michigan equipment, which will help contractors free working capital which would otherwise be tied up if they bought the equipment outright. This is particularly advantageous to the smaller operators in the field. But it can also help those firms which have found their working capital dwindling because of tight bidding and reduced profits.

### **How it Works . . .**

A contractor can take either a three-year or five-year lease, with or without the option to buy the equipment. With the option to buy, the machine is his for the payment of \$1 at the end of the lease period. However, if the contractor prefers to continue renting past the lease period, he can do so.

If before the lease has run out, the contractor wants to buy a new piece of Michigan equipment, he can cancel the old lease and trade his equipment in on a new rig. Here, the terms of the trade are made by the dealer.

### **What it Costs . . .**

The purchaser pays over the lease period the total cost of the equipment, plus a fixed percentage which varies with the length of the lease and whether he wants the option to buy.

For a straight three-year lease without option to buy, he pays the total cost of the equipment, plus 5%, and with the option to buy he pays the cost, plus 10%. For a straight five-year lease, the charge is cost, plus 10%, while with the option to buy it's cost, plus 15%.

Monthly rental payments on the five-year lease are based on the "sum-of-the-digits" method which means that the contractor pays 5/15 of the total rental in the first year, 4/15 in the second year and 3/15, 2/15, and 1/15 respectively in the remaining years. Under the three-year lease, he pays 50% of the total rental in the first year, 30% in the second and 20% in the third year.

The contractor also pays for maintenance, insurance, taxes and any other costs of operating the equipment.

A feature which makes this plan economical for contractors is the favorable rate of interest charged.

According to Clark Leasing Corp., the subsidiary of Clark Equipment Co., which will handle the financing, the interest charged on the new lease plan amounts to an effective annual rate of only 3.79%.

### **Tax Treatment . . .**

The new plan is not a tax-saving device. Rental payments under a lease with option to buy should be treated as installment payments on a conditional sales contract, according to the opinion of Clark. Payments under the straight lease plan are deductions for federal income tax purposes.

Actually, the payment schedules under the five-year lease plan figure out to about the same as the "sum-of-the-digits" depreciation schedules under the new tax law for equipment with a five-year useful life. This means that in the case of a piece of equipment with a normal 5-year life, annual rental payments under a five-year lease with option to buy can be charged off for taxes at about the same rate as payments under a straight lease.

### **Dealer Makes Out, too**

The Clark lease plan gives the distributor a good deal. He receives his regular commission upon delivery of the equipment. At the completion of a straight lease he buys the equipment from Clark Leasing for 5% of list price (paid in installments during the lease period), unless the contractor extends the lease, in which case the dealer receives the rental payments.

In the case of default by the purchaser, the dealer is protected from full recourse by the lender, in this case Clark Leasing.

Where a contractor defaults under straight lease, the dealer has two choices. He can purchase the equipment for the unpaid rental plus his installment payments to date (on the 5% he pays Clark under the straight lease plan) or he can return his commission. When a default occurs under a lease with option to buy, the dealer again has two choices. He can purchase the equipment for the unpaid rental, or he can return his commission.

✦ ✦ ✦

## **Third quarter business looks good**

After setting an all-time high in the second quarter, heavy construction contracts continue to set a fast pace in the third quarter. July volume was nearly 9% higher than in June, and August awards to date are running ahead of July. In fact, August contract volume will be the second highest on record for the month. (A large atomic plant contract helped set the record in August '53.)

The high level of new business has pushed total contracts for the first 33 weeks of '54 over the \$9.1 billion mark, only 7% below last year. When you remember that volume was off 34% from last year at

*(Continued on page 22)*





## PROFITABLE PRODUCER FOR OMAN on the West Virginia Turnpike

For money-making production on its contract on the West Virginia Turnpike, Oman Construction Co., Nashville, Tenn., relied heavily on rugged yellow equipment. This high-speed, high-capacity 225-HP CAT\* DW21 with No. 21 Scraper is one of the units in its line-up. Typical performance: along with another DW21 team and a D8 with No. 80 Scraper, this rig moved about 3500 yards of shale, sand and clay per 10-hour day over hauls of varying distances. Like Oman's other Caterpillar-built rigs, it worked day after day with a minimum of down time. In the background: a D8 with No. 8A Bulldozer.

What's back of the DW21's profitable performance? Among other factors, it's the *only* two-wheel earth-mover designed and built by *one* company, with every part *matched* for maximum efficiency. Its capacity, speeds and power are *balanced* for *big* production—loading, hauling, dumping. For example, its capacity is 20 yards heaped, 15 struck. Its 2.16 m.p.h. in low gear matches push-loading speeds, and its 20.0 m.p.h. in fifth provides maximum practical off-road going. Its power is honest—225 HP at the flywheel that won't "smother" on adverse grades. Other advantages: Good

visibility. A turning radius of 90°. Positive ejection that dumps even sticky materials fast. And hydraulic steering that gives the operator "feel of the road" control, an asset in tight spots and barreling along.

Another asset: Wherever a contract takes you, your nearby Caterpillar Dealer backs you up with prompt service—*on the job*. Ask him to show you performance figures on the fast-stepping, high-capacity DW21. Name the date—he'll demonstrate!

Caterpillar Tractor Co., Peoria, Ill., U. S. A.



# CATERPILLAR\*

\*Both Cat and Caterpillar are registered trademarks—©

**USE CAT EQUIPMENT  
FOR ON-SCHEDULE  
PERFORMANCE**

# HOW TEXACO ASSURES LONGER ENGINE LIFE



**BY KEEPING** engines clean — free of sludge and harmful carbon deposits — Texaco helps you (1) add miles and years to parts life, (2) decrease maintenance costs and (3) cut fuel consumption.

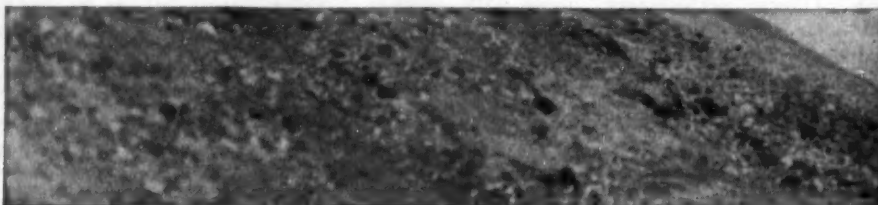
Enjoy these benefits by using one of the famous *Texaco Ursa Oil* series — a complete line of lubricating oils especially refined to make diesel and heavy duty gasoline engines give *more power* with *less fuel* over *longer periods* between overhauls. There's one exactly right for your engine, whatever its size, type, speed, or fuel used.

To keep hydraulic systems free from sludge,

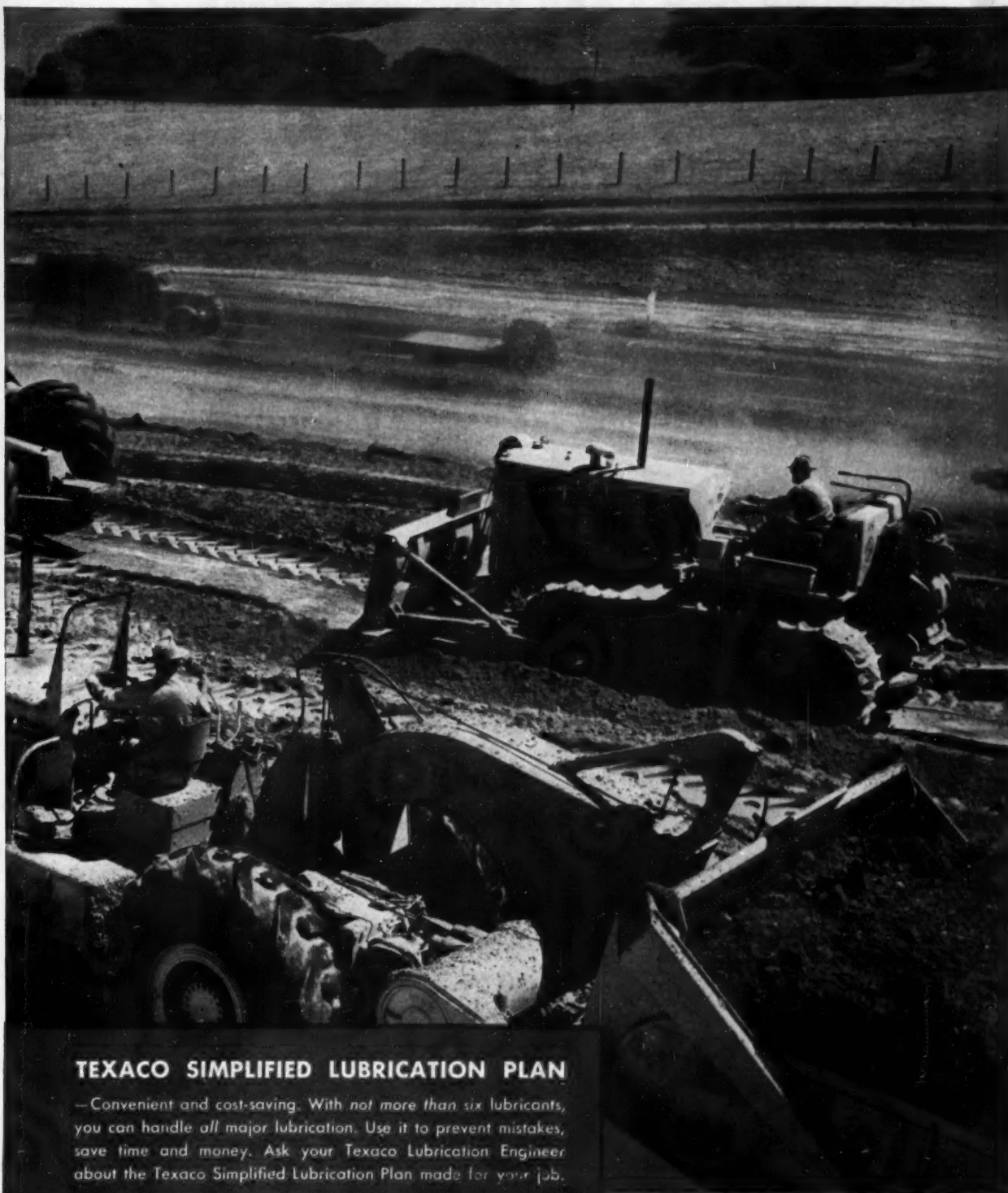
rust and foam, use *Texaco Regal Oil R&O*. It provides outstanding protection, smooth performance, longer life for pump and parts. Lubricate open gears and wire rope with *Texaco Crater*, or *Texaco Crater X Fluid*. They assure quieter gear operation — keep wire rope strong longer — reduce upkeep costs.

Let a Texaco Lubrication Engineer help you do more work at lower cost. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.



# TEXACO



### **TEXACO SIMPLIFIED LUBRICATION PLAN**

— Convenient and cost-saving. With *not more than six* lubricants, you can handle *all* major lubrication. Use it to prevent mistakes, save time and money. Ask your Texaco Lubrication Engineer about the Texaco Simplified Lubrication Plan made for your job.

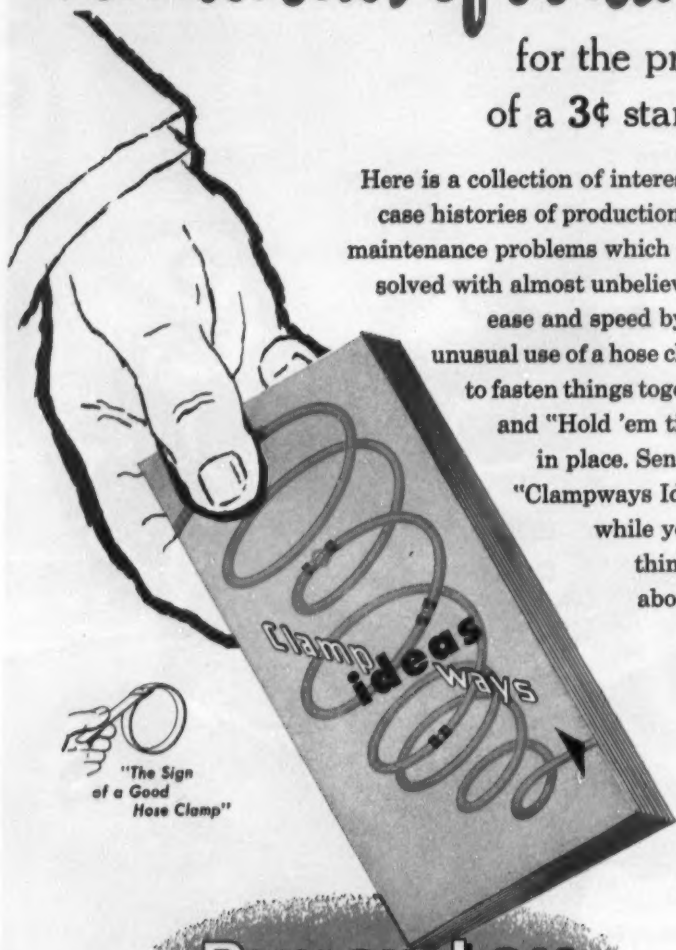
# **Lubricants and Fuels**

**FOR ALL CONTRACTORS' EQUIPMENT**



# ideas...worth hundreds of dollars for the price of a 3¢ stamp

Here is a collection of interesting case histories of production and maintenance problems which were solved with almost unbelievable ease and speed by the unusual use of a hose clamp to fasten things together and "Hold 'em tight" in place. Send for "Clampways Ideas" while you're thinking about it.\*



**PUNCH-LOK**  
Company

\*...or get your copy from your near-by Punch-Lok Distributor.



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Chicago 7, Illinois

send me **Clampways Ideas**  
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4800

## IT'S YOUR BUSINESS ...

Continued from page 18

the end of the first quarter, you can visualize the dramatic upswing in new business in the second and third quarters.

Both private and state and municipal construction are going strong while the pace of federal awards has slowed sharply since mid-July. Highways, bridges, commercial buildings, private housing and public building other than housing have sparked the business rise.

### Big Flow of New Proposed Work

In each of the first seven months of this year, new projects estimated to cost more than \$1 billion have poured into the heavy construction backlog. It's the first time on record that the flow of work into the planning stage has been so consistently large each month.

New work proposed so far this year has a total estimated cost of more than \$9.1 billion and pushed the construction backlog up to \$77.1 billion as of July 31. A record \$4 billion in state and municipal work has gone into the backlog this year, with toll roads accounting for a large part of the total.

Private construction accounts for the largest part of total proposed work so far this year, with projects costing over \$4.9 billion. However, this is 12% less than the volume of private work proposed in the corresponding months of '53. There's a big decline in federal work, with less than half as much proposed this year as in the '53 period.

### Highway Price Trend Mixed

Bid prices on federal-aid highways leveled off in the second quarter of '54 after declining 2-3% in each of the two preceding quarters. Second-quarter prices reported by the Bureau of Public Roads averaged 0.6% below the first quarter. However, they were about 5% below the second quarter of '53 and at the lowest level since early '51.

A different picture comes from Calif. where bid prices on state highway work dropped more than 5% between the first quarter of '54 and the second quarter. It was the third consecutive quarterly decline and pulled the index 13% below the second quarter of last year. The California Highway Dept. points to several factors which have contributed to lower highway prices: federal work has fallen off and other types of work

(Continued on page 26)

# Sudden freeze-ups don't stop work on Alaska air bases, thanks to Du Pont "Zerex"



At strategic air bases in Alaska, the Birch, Lytle, Green Construction Co. is rushing taxiways, plane parking aprons, and jet-fuel storage stations to completion. Toughest hurdle: the weather. In Alaska, where the mercury can drop to 28° even in August, the weather is an unpredictable enemy that can cripple equipment and zoom costs at almost any time.



"The Air Force can't afford any delay," says mechanics superintendent Emmett V. Roetman, "and neither can we. We've got a lot of expensive equipment on the job—earthmovers, tractors, graders, dump trucks, power shovels, rollers—and all of 'em could freeze up overnight. We don't spare the horses to make sure they don't!"



"Even before summer is over, we fill the cooling systems with pre-mixed Du Pont 'Zerex'—enough to protect our equipment even at 40° below zero. It's simple to pre-mix 'Zerex.' What's more, it's economical. We save vital time by eliminating the daily hydrometer check—and our operators don't just dump in gallons whenever they run a bit low."



"We use 'Zerex' exclusively. For my money, it's the safest anti-freeze going—freeze-ups are *one* worry we can cross off. 'Zerex's' chemical rust inhibitor keeps a cooling system cleaner, too—leaves no sticky film to catch rust particles and gum up the radiator. We're sailing right along on schedule, thanks to Du Pont 'Zerex'."

  
**ZEREX**  
REG. U. S. PAT. OFF.  
**Anti-Rust ANTI-FREEZE**

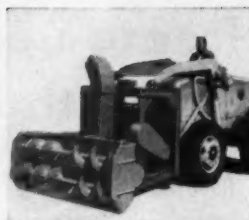
E. I. DU PONT DE NEMOURS & CO. (INC.), WILMINGTON, DELAWARE



**Back Hoe** makes a "PAYLOADER" a double-duty digger.



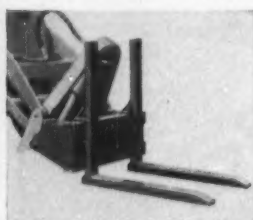
**Backfill Blade** is available for most "PAYLOADER" sizes.



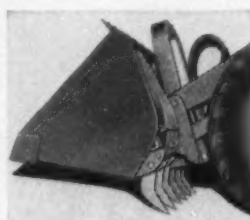
**Rotary Plow** has its own engine — loads or throws snow.



**Operator Cabs** for greater comfort, winter or summer.



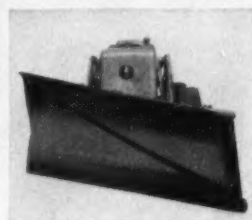
**Fork Lift** has adjustable fork-spacing for many unit loads.



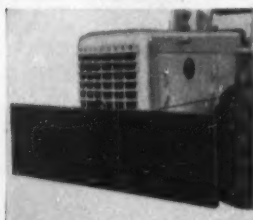
**Scarifier** loosens tough soil for faster, easier handling.



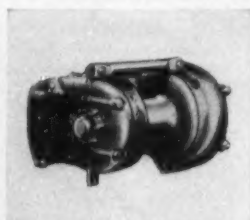
**Pick-up Street Sweeper** attaches on bucket — dumps its loads into trucks.



**Blade Plows** are available — both rigid and reversible, trip blade types.



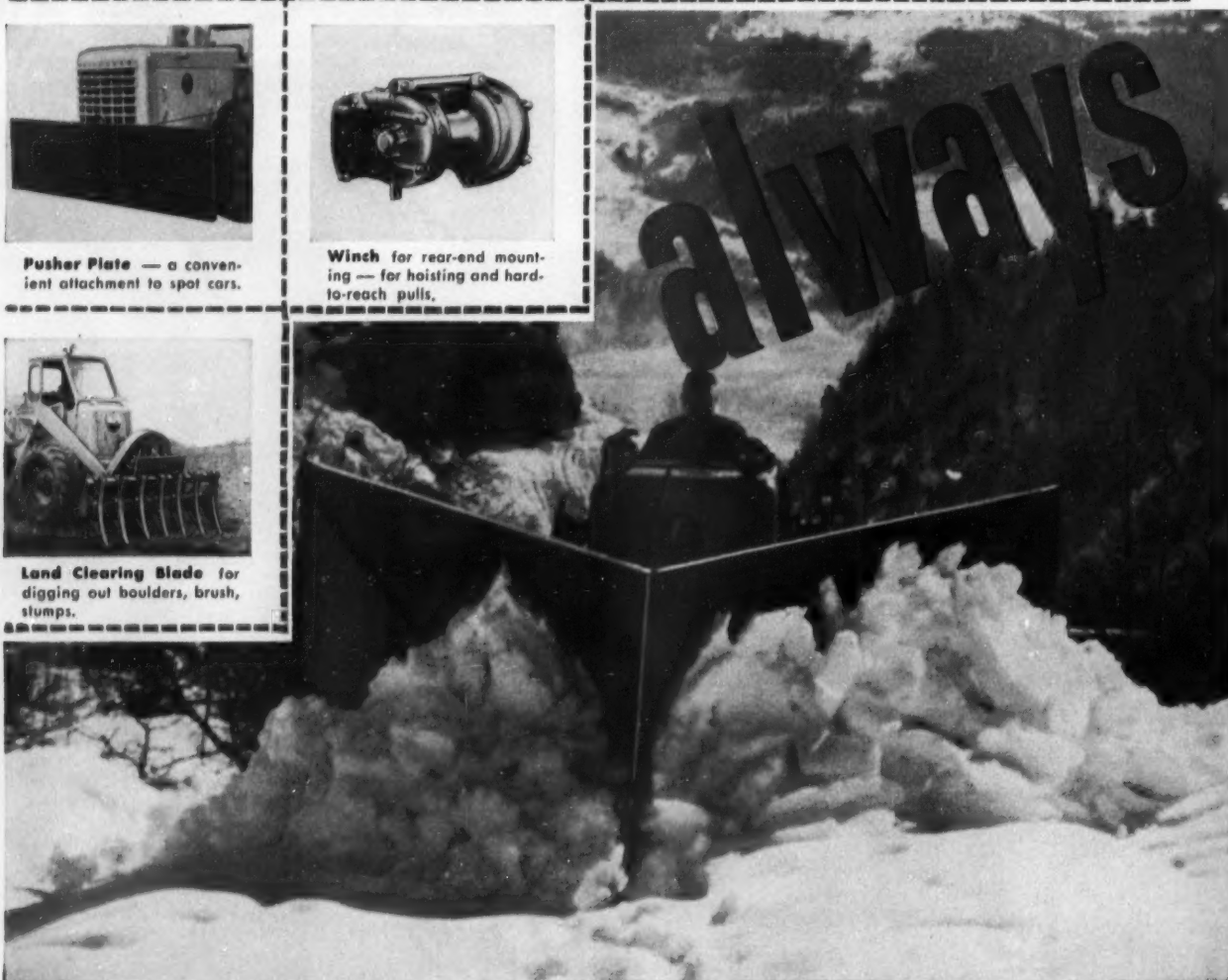
**Pusher Plate** — a convenient attachment to spot cars.



**Winch** for rear-end mounting — for hoisting and hard-to-reach pulls.

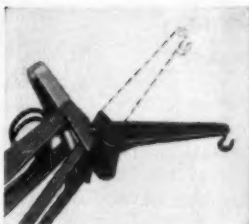


**Land Clearing Blade** for digging out boulders, brush, stumps.

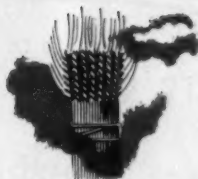


4-wheel-drive "PAYLOADER" models, with V plow are proven snow fighters for both country and city highways . . . have power to handle heavy snows . . . maneuverability for fast alley-clearing.





**Crane Hook** quickly mounted to handle pipe, bars, timbers, etc.



# "in season"



## PAYLOADER®

THE FRANK G. HOUGH CO. • LIBERTYVILLE, ILL.  
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY



Standard buckets can be used to load dirt or snow, but special larger buckets are also available for snow-handling.

## PAYLOADER

tractor shovels work for you the whole year through

When you buy a standard "PAY-LOADER" you're investing in a machine so versatile that you can use it 12 months of the year — that can dig, grade, spread, pile and load dirt . . . that can handle materials and load snow.

In addition a variety of special buckets, attachments and accessories are available so you can use your "PAYLOADER" for more and special jobs.

For information on the complete, proven "PAYLOADER" line plus ALL the special equipment available, see your Hough Distributor, or write The Frank G. Hough Co.

THE FRANK G. HOUGH CO.

Please send me more "PAYLOADER" information.

NAME .....

TITLE .....

COMPANY .....

STREET .....

CITY ..... STATE .....

- ☐ have distributor call
- ☐ send information on all seven models
- ☐ send information on all attachments.

# Here's Why **THURMAN** Portable **SCALES**

**"Can Take It"**

**MANY MOVED 30 TIMES**

**✓ PORTABLE** Move Thurman Portable Heavy-Duty Truck Scales as a unit, — they're engineered to be transported from job to job and retain their weighing accuracy. Concrete pits are not required. Place the end stands on solid, firm ground — "ramp-up" at both ends with stone or dirt and you're ready to weigh.

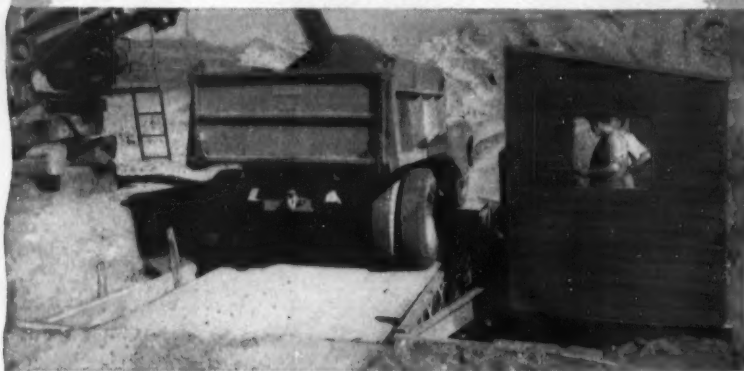
**✓ RUGGED** These precision-built heavy-duty Portable Truck Scales weigh accurately and are built to "take-it". Hundreds of Thurman Scales have been moved to over 30 different locations during a period of several years. Rugged service like this, illustrates how well these scales are designed for portable weighing.

**✓ PROVEN** Many contractors and road builders throughout the country who have used Thurman Portable Scales, like them to the extent that they now have several Thurman Scales in constant use. For more complete information on deck length (18 — 43 ft.) and load capacities (20 — 50 tons), write for our folder: "Accurate . . . Portable Weighing".

**the THURMAN**

PRECISION PRODUCTS  
since 1918  
**MACHINE COMPANY**  
Scale Division

DEPT. C, 156 NORTH FIFTH STREET • COLUMBUS, OHIO



Other Precision Scales by **THURMAN**

Batching  
Electronic

Industrial  
Liquid Weighing

Pipe Lever-Hopper  
Pit Scales

Warehouse  
Wheelbarrow

## IT'S YOUR BUSINESS . . .

Continued from page 22

have been getting scarce; bidders lowering prices to keep their organization intact and to meet equipment obligations; and better availability of materials and equipment. They also mention higher labor productivity as a possible factor.

### SOME BIG CONTRACT AWARDS OF THE MONTH

**American Bridge Div., U. S. Steel Corp.**, 525 William Penn Pl., Pittsburgh, Pa., Contr. PN4, superstructure of Delaware River Turnpike Bridge between New Jersey and Pennsylvania for the Pennsylvania Turnpike Comm. and New Jersey Turnpike Auth., Administration Bldg., New Jersey Turnpike Auth., New Brunswick, N. J., \$10,991,363.

**R. H. Fulton & Co.**, Box 1526, Lubbock, Tex., 395-mi crude oil pipe line from Merino, Colo. to Burns, Kan. and Panama Williams Co., Melrose Bldg., Houston, Tex., 86-mi crude oil pipe line from Burns, Kan. to Great Bend, Kan., for Arapahoe Pipe Line Co. (Sinclair Pipe Line Co., Sinclair Bldg., Independence, Kan. and Pure Oil Co., 36 E. Wacker Dr., Chicago, Ill.). \$25,000,000.

**United Engineers & Constructors, Inc.**, 1401 Arch St., Philadelphia, Pa., design and construct electric generating station, Linden, N. J., for Public Service Electric & Gas Co., 80 Park Place, Newark, N. J. \$100,000,000.

**Fish Engineering Co.**, M&H Bldg., Houston, Tex., design and construct 159 mi 18-in., 680 mi 22-in., 387 mi 26-in. and 143 mi 14-in. pipe line, 13 compressor stations, Colorado, Utah, Wyoming, Idaho, Oregon, Washington and New Mexico for Pacific Northwest Pipe Line Corp., Texas Eastern Bldg., Shreveport, La. Approximately \$160,000,000.

**Cummins-Hart Construction Co.**, 318 Wyndhurst Ave., Baltimore, Md., bar mill for stainless steel heating furnaces, cooling beds, charging machines, overhead cranes, building, for Armco Steel Corp., Stainless Steel Div., 3400 E. Chase St., Baltimore, Md. \$5,500,000.

(More Big Jobs on page 198)

# NOW

a new low-cost  
**WINDROW LOADER**

**NOW**—a new low-cost answer to windrow loading.

**NOW**—a Windrow Loader with a realistic capacity.  
Keeps ahead of all the trucks normally available.

**NOW**—a Windrow Loader with fast, easy maneuverability. No need to travel to an intersection to turn around. Turning radius: 8'-6".

**NOW**—a Windrow Loader for year-round use. Handles snow in addition to other windrowed material.



Tractor mounted. New claw-action feeder with automatic release. Loads earth, etc., at 4 cu. yd. per min. Snow at 7 cu. yd. per min. Ten-foot discharge height. Eight-foot boom overhang. Self propelled at 10 m.p.h.






**NOW**—is the time to write for full information.

54-41-WL

## Barber-Greene

AURORA, ILLINOIS, U.S.A.

WRITE for  
INFORMATION

descriptive  literature... sound  movies  
cost  studies... nearby  job inspection... plant  layouts







TUNNEL	LOCATION	LENGTH	BORE	DRILL EQUIPMENT GARDNER-DENVER
Bear River, Mokelumne Project	California	13,520 ft.	8½'x11'	Full
Bingham Tunnel #5840	Utah	7,000 ft.	21'x26'	Full
Carter Lake Pressure	Colorado	5,800 ft.	10'	Full
Cherry Valley Dam Diversion	California	1,280 ft.	18½'	Full
Downsville Dam Diversion Tunnel	New York	1,900 ft.	45'	Full
Duchesne	Utah	31,665 ft.	11'	Full
East Delaware Aqueduct	New York	132,860 ft.	11'4"	Full
Frenchman Hills	Washington	9,200 ft.	16'	Full
Grand Valley Emergency	Colorado	2,240 ft.	13'	Full
P. G. & E. Pitt #4 Tunnel	California	21,500 ft.	23'	Full
Paraiba-Pirai Diversion	Brazil	12,624 ft.	25'x23'	Full
Rattlesnake	Colorado	8,760 ft.	11½'	Full
Rideau River	Ontario	9,000 ft.	7'	Full
Ross Dam Diversion	Washington	2,000 ft.	19½' and 27½'	Full
Sa Cervaiho	Brazil	13,400 ft.	17'x17'	Full
Tennessee Creek	North Carolina	4,800 ft.	13'x14'	Full
U of Washington Tunnel	Washington	5,280 ft.	6'x8'	Full
MDC North Relief Sewage	Massachusetts	3¼ miles	12'	Partial
Piney Branch Trunk Sewer	Washington, D. C.	1,875 ft.	15'	Full
Meilleur Atlantique	Quebec	1,575 ft. 9,000 ft.	11' 10', 9' & 7'	Full Partial
Sir Adam Beck Hydro-Electric Project	Ontario	Twin 5½ mile	52'	Partial

SINCE 1859

# GARDNER-DENVER

# - DENVER

## tunnel drilling!

Here's the tunnel record . . . that speaks for itself . . .

It adds up to 604,057 feet of tunnel — and remember, this list represents **ONLY** those tunnels which were drilled during the last five years!

TUNNEL	LOCATION	LENGTH	BORE	DRILL EQUIPMENT GARDNER-DENVER
Hamilton Sewer Project	Ontario	3,300 ft.	12½'x12½'	Full
Cincinnati Water Works	Ohio	2,780 ft.	8'x8½'	Partial
Santa Cecilia-Vigario	Brazil	14,000 ft.	11'	Full
Calumet Contract #18C	Illinois	12,624 ft.	25'x23'	Partial
P.G. & E. Hendricks Tunnel	California	2,000 ft.	7'1"x6'4¼"	Partial
South Laguna Beach Sanitary Sewer	California	4,600 ft.	6'x7½'	Partial
Spokane Sewer Tunnel (Section B-2)	Washington	12,000 ft.	4'x6'	Full
Cobbs Creek Intercepting Sewer	Pennsylvania	6,250 ft.	6½'x7½'	Full
Mettlakatia Indian Community Purple Lake Project	Alaska	6,000 ft.	10'6"	Partial
Boqueron Tunnel #1	Venezuela	2,600 ft.	7'x7'	Full
Boqueron Tunnel #2	Venezuela	5,900 ft.	28.7'x19.7'	Full
Belviso Creek Project	Italy	1,560 ft.	28.7'x19.7'	Full
Surco Tunnel Project	Peru	16,150 ft.	10'2"	Full
Southwest Main Gravity Intercepting Sewer Tunnel	Peru	20 km (12.5 miles)	9¼'x8¼'	Partial
Bacon Tunnel	Pennsylvania	18,000 ft.	17' to 8'6"	Full
Detroit Dam Diversion Tunnel	Washington	10,000 ft.	21' horse shoe	Full
Detroit Dam	Oregon	230 ft.	31' horse shoe	Full
Lucky Peak Dam	Oregon	1,200 ft.	28'	Full
Eugenia Hidroelectrica Andina S.A.	Idaho	1,200 ft.	23'	Full
Laranjeiras	Peru	7.8 miles	9'x12'	Partial
	Brazil	3,320 ft.	20'x60'	Full

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS  
FOR CONSTRUCTION, MINING, PETROLEUM AND GENERAL INDUSTRY

Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner-Denver Company (Canada) Ltd., 14 Cuddy Avenue, Toronto 16, Ontario

## PUMP EXPERTS STUDY CONTRACTORS' PROBLEMS

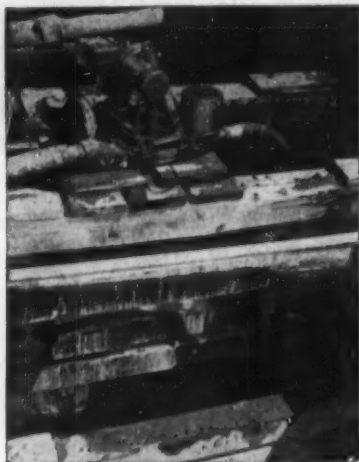
Contractors who have ever had a pump fail on the job realize the importance of choosing the proper pump.

A pump failure may hold up the job, cause men to be idle, tie up other equipment or even prevent finishing the contract on time.

The best insurance is to have a pump that has proved itself on many tough assignments.

The Gorman-Rupp Company of Mansfield, Ohio claims that their pumps will out-perform any pump of comparable size and type on the market. So states their guarantee. The greater capacity of these pumps when working against high heads is very important to the contractor. They are the simplest of pumps and practically trouble-free. They never quit on the job.

Years of study and research by engineers in the field and the laboratory have made possible these claims and the guarantee.



### FIELD NOTES on the BEST DIAPHRAGM PUMP EVER BUILT!

With mud, sludge and water seeping into a 28 foot pit for an industrial sewer installation, W. W. Purdy Construction Company of Mansfield, Ohio put this Gorman-Rupp 3" diaphragm pump 3D-8R6, on this job at the Empire Steel Corporation factory at Mansfield. A junction of several six-foot storm sewer tiles was necessary. Rapidly rising water in the 12x22 foot pit flooded out workmen and 18 inches of mud and slime accumulated in the pit. The Gorman-Rupp diaphragm pump cleaned out the pit and had the workmen back on the job in 30 minutes.

This job involved an 18 foot suction lift, 8 foot discharge elevation and about 35 feet of horizontal 3" hose discharge line into an open manhole. No attention was necessary except fuel supply and starting or stopping when required. The unit is self-priming. It was necessary to operate the unit several minutes every hour.

**THE GORMAN-RUPP COMPANY**  
MANSFIELD, OHIO

# GUARANTEED!

## TO PUMP MORE WATER



GORMAN-RUPP  
125 M PUMP

*and doing it on-the-job EVERY DAY!*

### NO OTHER PUMP, SIZE FOR SIZE, CAN EQUAL ITS PERFORMANCE

Our distributors are authorized to put a Gorman-Rupp Contractors' Pump on any pumping job, any time, anywhere, alongside any other make pump, size for size. The Gorman-Rupp pump is guaranteed to pump more dirty water more hours, using less gasoline and to prime quicker than any other self-priming pump. If it isn't the best all-around pump, our distributor will accept the return of the Gorman-Rupp pump and pay the user any installation expense incurred.

Only the utmost confidence in the product could justify this guarantee.

We can furnish you with any size of self-priming centrifugal pump ranging in capacity from 1½ in., 5,500 G.P.H. to the powerful 10 inch, pumping 240,000 G.P.H.

Ask for Contractors' Pump Bulletin No. 4—CP-11



**SOLVE  
YOUR  
PUMPING  
PROBLEMS**

**GORMAN-RUPP**  
SELF-PRIMING  
**CENTRIFUGAL PUMPS**

**THE GORMAN-RUPP COMPANY**  
MANSFIELD, OHIO



# THE No. 12

## MAKES BLUEPRINTS COME TRUE



*This No. 12 Motor Grader, owned by Daley Corp., is bank-sloping for a canal along the new Wabash Freeway, San Diego, Cal.*

When the engineers ask for a clean 40-degree bank, put a Cat\* No. 12 Motor Grader on the job. You'll get it, right down to fractions of an inch. And the best of it is that any good operator can work accurately with this machine. Here are some of the features that make the No. 12 outstanding:

- Caterpillar-built throughout, with balanced power, weight and speed.
- A steady-going 100-HP engine directly powers all controls, eliminating leaky hydraulic lines.
- Operates on low-cost No. 2 furnace oil without fouling.
- Full range of blade positions without changing links.
- Powerful control brakes prevent creeping under loads or vibration.
- Rugged construction—heaviest box-section drawbar circle on any grader.

Don Daley, of Daley Corp., San Diego, with ten big yellow units working on the Wabash Freeway, says: "Every year

our faith in Caterpillar's engineering features, economy, long life, trade-in value and good dealer service is strengthened. The machine that stands up longest and does the job is the one to make money with."

Call your Caterpillar Dealer today for an on-the-job demonstration of the equipment that can make money for you.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

# CATERPILLAR\*

\*Both Cat and Caterpillar are registered trademarks—(H)



# How Bucyrus-Eries BOOST YARDAGE

## THREE WAYS



### 1. POWERFUL DIGGING ACTION

Bucyrus-Erie excavators give you more useable power at the dipper. Engines are "tailored" to meet the demands of excavator service—there's less pull-down under sudden loads, more lugging power at slow speeds, and they regain speed quickly. There's a minimum loss of power, too, because there are fewer wearing parts and anti-friction bearings are used liberally.

### 2. RAPID HOIST AND SWING

Smooth coordination of all functions in the hoist and swing cycle speeds operation and increases output. Instant-acting controls deliver quick acceleration and deceleration, accurate stops. There's no excess weight to slow operation—you get maximum working ability per pound of weight.

### 3. LESS DOWNTIME, MORE WORKING TIME

The right combination of power and speed assures you of efficient excavating. Right design and construction throughout means not only sustained high output, but also low operating costs, low repair costs, and long machine life. All are yours with Bucyrus-Erie Individual Design.

With Bucyrus-Erie's unique Individual Design of every model in the line, each component of a particular machine is matched to the job it must handle. You get an excavator that's built right from boom point to treads. See your Bucyrus-Erie distributor soon for the complete story.

50E34C

## BUCYRUS-ERIE COMPANY

South Milwaukee, Wisconsin



SHOVELS • DRAGSHOVELS • DRAGLINES • CLAMSHELLS • CRANES

(Advertisement)



C. L. Gleason, Chief Construction Engineer, Iowa State Highway Commission, designer; J. D. Armstrong Co., Ames, Iowa, builder.



Machine is run entirely by air—even pneumatically-propelled. Shoulder is first sloped to facilitate its operation.

## Jaeger air power supplies the wallop breaking 70,000 ft. of curb at 10c a ft.

Breaking 600 ft. of concrete curbing per hr., at a cost of only 10c a ft. compared to over 35c by other methods, was achieved by Hallet Construction Co. on the widening of 70,000 ft. of Highway 150 between Independence and Walker, Iowa. This low cost and high production was obtained by means of a specially-designed curb breaker powered by a Jaeger "Air Plus" compressor. The

machine is run entirely by air — even pneumatically-propelled.

On any job where air is used, the 15% to 25% higher "new standard" ratings of Jaeger Air-Plus compressors insure the higher volume of air required to operate at full efficiency.

And they produce the additional air at moderate temperatures, with notably low fuel consumption and, we believe, the lowest cost of upkeep. Ask your Jaeger distributor to show what he can save you on air and air tool operation — or send for Catalog.

<b>Jaeger Standards:</b>	<b>75</b>	<b>125</b>	<b>185</b>	<b>250</b>	<b>365</b>	<b>600</b>
Old Standards:	60	105	160	210	315	500

### THE JAEGER MACHINE COMPANY

800 Dublin Avenue, Columbus 16, Ohio

PUMPS • CONCRETE MIXERS • TRUCK MIXERS • LOADERS • PAVING MACHINES



# BELIEVE IT OR NOT!

**...the proper place to test the efficiency of any wellpoint is IN THE GROUND—NOT in a tank of water!**

This is a standard, dual-valved, 2" Moretrench Wellpoint Screen. Its large unobstructed filter area is one of the main reasons for its high efficiency.

But that's only part of the wellpoint story. Many other factors enter the picture of successful dewatering of wet excavation. Our catalogue describes these in detail and a copy is yours for the asking.

*For thirty years contractors have been proving that the place to test a wellpoint system is on the job. That's why the majority of them prefer to work "in the dry" with MORETRENCH.*

For instance, the pumping station shown on the opposite page was



## M O R E T R E N C H

# DRIED UP AND DUG OUT .....in just 30 days



Pumping Contractor: American Dewatering Corporation, New York-Houston, Texas

**PICTURE 22' OF WATER IN THIS HOLE!** That was the problem facing the contractor in excavating for a pumping station on the Ouachita River in Arkadelphia, Arkansas.

His first step was to install a Moretrench Wellpoint System. Although heavy gravel and marl at grade complicated the pumping operations, the Moretrench

System controlled the water perfectly, and dry digging proceeded rapidly. Banks were sloped. Sheet piling was unnecessary. *In 30 days, the excavation was down to grade. Time and money were saved!*

Constructive help on how to handle your wet job is as near as your phone. Call any one of our offices for a prompt answer to your problem.

## C O R P O R A T I O N

90 West St.  
New York 6

4900 S. Austin Ave.  
Chicago 38, Illinois

7701 Interbay Blvd.  
Tampa 9, Florida

315 W. 25th St.  
Houston 8, Texas

Rockaway  
New Jersey

Western Representative: Andrews Machinery of Washington, Inc., Seattle 4, Washington  
Canadian Representative: Geo. W. CROTHERS Limited, Toronto, Ontario

**PICTURE  
OF THE  
MONTH**  
CONSTRUCTION  
METHODS AND EQUIPMENT



## **Batching Over Water Saves Space**

**BARGE-MOUNTED BATCH PLANT** solves space problem on a Pittsburgh bridge and retaining wall job. Close quarters made it impossible to erect a plant on shore, and traffic was too heavy to permit long hauls through the city. John F. Casey Co. is

using a Blaw-Knox plant which produces 60 yd of concrete an hour and stores 100 tons of aggregate and 400 barrels of cement. Materials are delivered by barge and mixed in B-K truck mixers. The job calls for nine river piers and a 500-ft retaining wall.



# Simplified Concrete Forming System for Lowest all around Form Costs!

## 3 BASIC ELEMENTS



### UNI-FORM Panels

Prefabricated . . .  
ready to use when  
they reach your  
job.



### UNI-FORM Tie

Locks, spreads  
and ties . . .  
absolutely  
accurate.

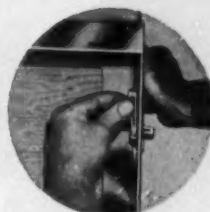
### UNI-FORM Tie Key

Wedge-Shaped for  
fast, easy inser-  
tion.

## 3 SIMPLE OPERATIONS



1 Place the Uni-Form Tie Loop  
into the Tie Hole.



2 Set the Tie Key into the Tie  
Loop. Panel and Tie are then  
locked into one integral unit.



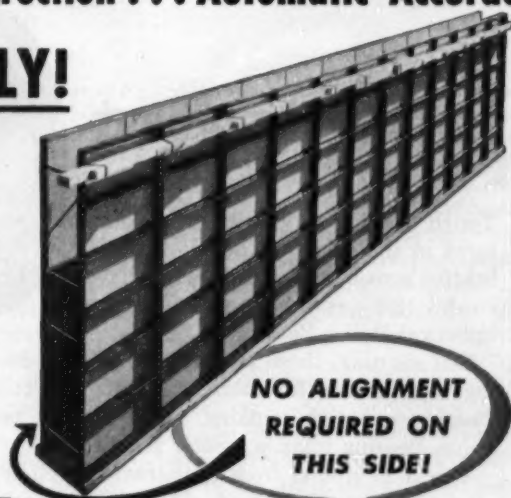
3 Bring the next UNI-FORM  
Panel into position . . . in-  
sert the Tie Key. The as-  
sembly is now completed.

**UNI-FORM® Panels Assure Faster Erection . . . Automatic Accuracy  
ALIGNMENT ON 1 SIDE ONLY!**

## FREE Engineering Service!

Complete job analysis . . . forming recommendations,  
bills of material supplied by our staff of experienced  
engineers...**PLUS**...Field Service...anywhere...any-  
time to insure proper starts and maximum economy on  
your job. Send us a set of plans for **FREE** estimate.  
No obligation.

RENTED . . . WITH A PURCHASE OPTION



**NO ALIGNMENT  
REQUIRED ON  
THIS SIDE!**

# UNIVERSAL FORM CLAMP CO.

GENERAL OFFICES AND FACTORY: 1238 N. KOSTNER • CHICAGO 51, ILLINOIS

OFFICES AND WAREHOUSES:

CLEVELAND, OHIO, 24901 Lakeland Blvd. • BALTIMORE, MD., 661 S. Monroe St. • HOUSTON, TEXAS, 2314 Preston Ave.

SAN LEANDRO, CALIF., 2051-9 Williams St. • LOS ANGELES, CALIF., 5855 South Western Ave

DISTRIBUTORS IN PRINCIPAL CITIES

Service  
Wherever

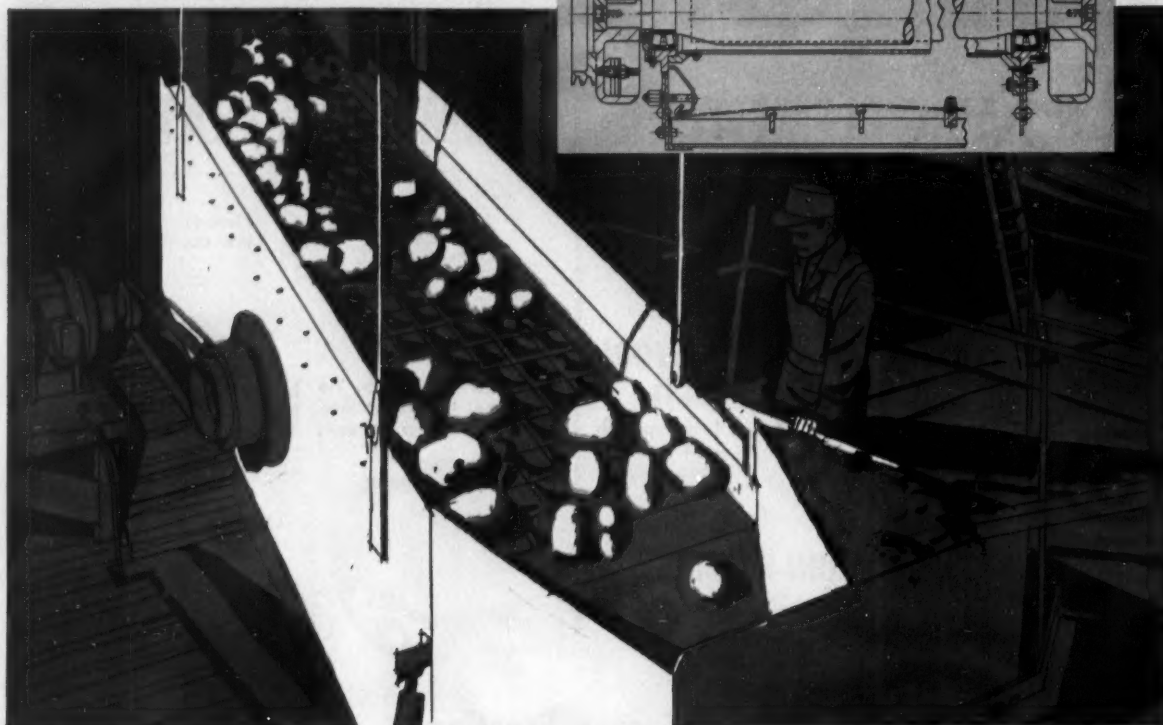
You Build...Coast to Coast



Copyright 1953 by UNIVERSAL FORM CLAMP CO., Chicago 51, Ill.

# TORRINGTON BEARINGS AT WORK

*The centrifugal force which produces the perfect circle motion of Ripl-Flo Heavy Duty Vibrating Screens, manufactured by Allis-Chalmers, is imparted through precision-ground, self-aligning TORRINGTON Spherical Roller Bearings.*

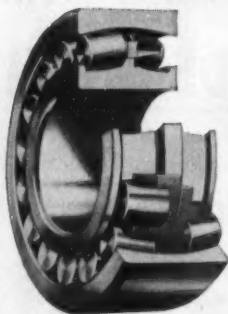


## Solving toughest

Tough bearing problems are encountered in the design of heavy-duty vibrating screens. Leading builders have found the answer in TORRINGTON Spherical Roller Bearings.

Self-aligning, these rugged TORRINGTON Bearings compensate for minimum shaft deflection. Bearing capacity remains constantly at peak value. Bearing wear is greatly reduced.

Precision-ground from heat-treated high-alloy steels, TORRINGTON Spherical Roller Bearings cut friction to a practical minimum. Power flows



## bearing problems!

smoothly and efficiently on high conformity surfaces. Bearing life is lengthened and daily tonnages climb.

Features like these solve the toughest bearing problems not only in vibrating screens but also in pulverizers, grinding mills, crushers and rotary kilns.

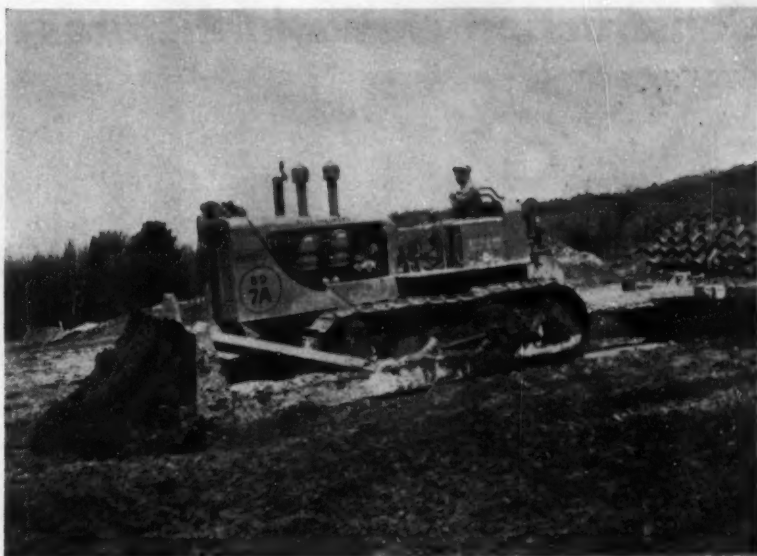
Always use TORRINGTON Spherical Roller Bearings!

THE TORRINGTON COMPANY  
South Bend 21, Ind. Torrington, Conn.

**TORRINGTON** *SPHERICAL ROLLER* **BEARINGS**

Spherical Roller • Tapered Roller • Cylindrical Roller • Needle • Ball • Needle Rollers

One of 17 A-C tractors, with Gar Wood dozers and cable control units, used by Yonkers Contracting Co. on their Maine Turnpike Contract.



## Dozing on the Turnpikes from Maine to Ohio!

*S. J. Groves & Sons Co. rip into tough going with Gar Wood equipped Hd-20 on Ohio Turnpike contract.*

Work on the big, new super-highways is in high gear this summer with contractors moving mountains of earth on projects throughout the country. As usual, Gar Wood dozers on Allis-Chalmers tractors fitted with Gar Wood cable control units, are handling a big share of the earthmoving on these major construction jobs.

Up in Maine, work is progressing on the second section of the Maine Turnpike — another high-speed, four lane divided highway running from Portland to Augusta.

On a contract for grading and draining an 11 mile stretch outside the twin cities of Lewiston-Auburn, Yonkers Contracting Co. is using 15 big Allis-Chalmers Hd-20s and 2 HD-15s, all Gar Wood equipped, for stripping and spreading fill on the job. Over 3,000,000 yds. of dirt and 100,000 yds. of rock are involved in the contract.

In the photo at top, Yonkers Contracting Co. uses one of their 17

tractors, with Gar Wood dozers and cable control units, to spread fill for compaction by a sheepfoot roller pulled by the same tractor.

Moving westward, contractors on New Jersey's tremendous new Garden State Parkway, from Cape May to the New York state line—and on the 500 mile New York Thruway, are using fleets of Gar Wood equipped Allis-Chalmers tractors in an effort to rush completion of the majority of the work by the end of the current working season.

In Pennsylvania preliminary work on extensions to the Pennsylvania Turnpike is underway and digging and dozing is swiftly progressing along the entire length of Ohio's big, new \$283 million Turnpike.

In the photo at left, S. J. Groves & Sons Co. use one of their many

Allis-Chalmers HD-20s, equipped with Gar Wood dozer and cable control unit, to rip into sandy clay, clogged with tree and shrub roots, along the right-of-way of their 12.9 mile, 1,750,000 cu. yd. contract. Groves is only one of the many contractors using Gar Wood equipment on these vital toll road links between the Atlantic Seaboard and Chicago.

When there is earthmoving to be done, contractors everywhere specify Gar Wood! 15 dozer models, designed for both cable and hydraulic operation, are available for all Allis-Chalmers crawler tractors. Gar Wood's dozer line is supplemented by a complete line of front and rear mounted cable control units for any dozer-scraper operation.

**GAR WOOD INDUSTRIES, INC.**

TRACTOR EQUIPMENT SALES • WAYNE, MICHIGAN

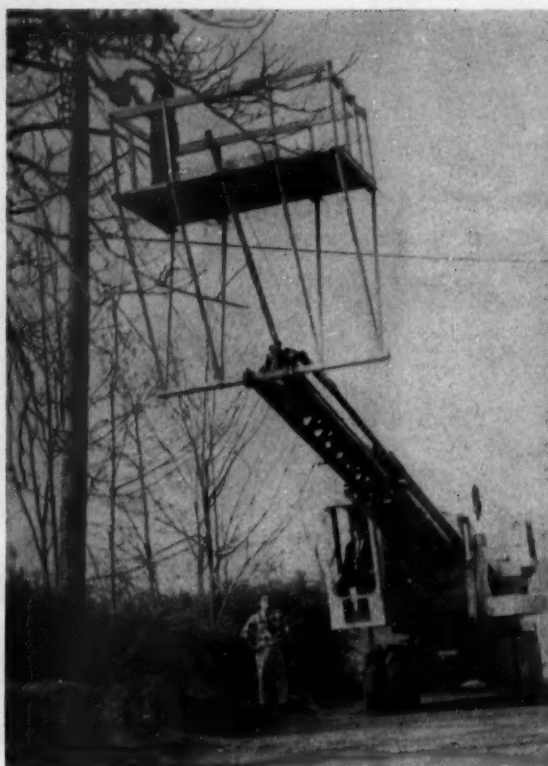




## Construction News in Pictures...



**REAL CLOSE CONTROL** — Sidewalk superintendents, men alongside the machine and the operator, get a close look as Tractomotive's new Tracto-Ripper breaks loose a shallow layer of asphalt on a street in Chicago's financial center. Hydraulically controlled ripper is mounted on rear of Allis-Chalmers HD-15 with torque converter drive that gives even low-speed power.



**GRADALL BECOMES MOBILE ELEVATOR** — Up in northern New Jersey township workers have found yet another use for their versatile Gradall. They secured a wide platform, supported by steel tubing, to the end of the boom. By extending the boom and raising it to full height, the platform can be raised to 28 ft. Platform is kept level by the tool actuator cylinder.



**AUGER DRILLS BLAST HOLES** — McCarthy vertical drill mounted on 1½-ton truck drills 4½-in. holes 12 to 20 ft deep for Bruns Coal Co. in cutting back a 315-ft hill for a three-lane freeway into Steubenville, Ohio.



**BRINGING DOWN THE HOUSE** — Demolition has set in for the Center Theatre in New York's Rockefeller Center, a showplace that offered first movies, stage production and special entertainment. Only 21 years old, the building is being removed to make way for an office building. The Lima crane is pulling down the tiers of balconies in the rear. Waiting on-stage is a Brockway truck-trailer which is loaded with rubble by the Allis-Chalmers HD-9 at right, equipped with a built-up Tractomotive shovel.—Wide World



# NEW CHEVROLET TRUCKS

**shorten your schedules  
and cut costs in the bargain!**

You can actually count on a Chevrolet truck doing your job faster and for less money. That's a strong claim, sure; but one that's been proved time after time on job after job.

## EXTRA POWER SAVES YOU TIME

All three Chevrolet truck engines—the "Thriftmaster 235," the "Loadmaster 235" and the "Jobmaster 261"—deliver extra horsepower for greater acceleration and hill-climbing ability. You haul your loads on a time-saving schedule and save money doing it—for with Chevrolet's higher compression ratio you use less gas.

## BUILT-IN RUGGEDNESS SAVES YOU MONEY

Stronger, more rigid frames, newly designed clutch; huskier rear axles and drive lines in 2-ton models; higher capacity universal joints in medium- and heavy-duty models—these beefed-up built-in chassis features mean your Chevrolet truck is going to stay on the job for a longer time. They also mean you can expect extra-low operating costs.

Another important advantage is Chevrolet's low original cost—lowest of all lines of trucks! You save the day you buy, and you go right on saving as long as you own that Chevrolet truck. Drop by your Chevrolet dealer's and look over the many models he has to offer. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

**MOST TRUSTWORTHY TRUCKS  
ON ANY JOB!**

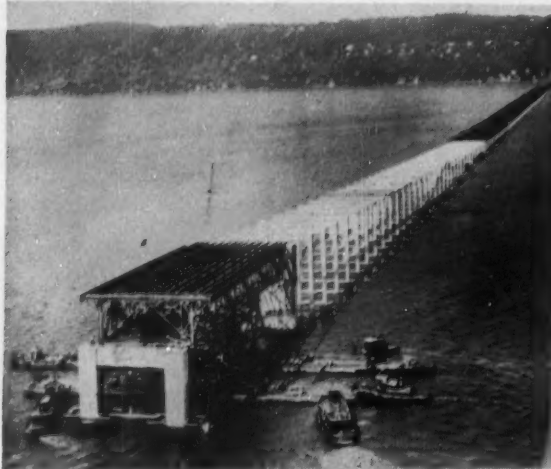


## CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

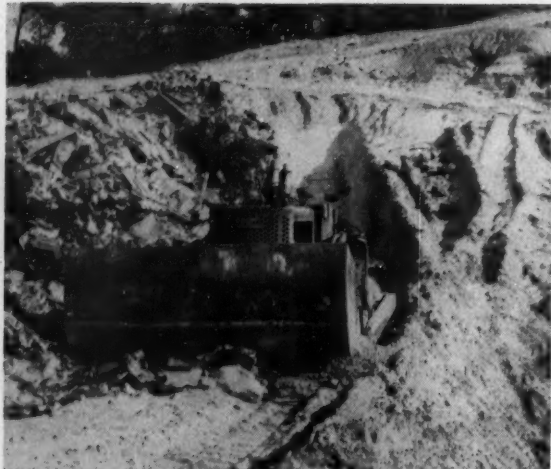
**THREE GREAT ENGINES**—The new "Jobmaster 261" engine\* for extra heavy hauling. The "Thriftmaster 235" or "Loadmaster 235" for light-, medium- and heavy-duty hauling. **NEW TRUCK HYDRA-MATIC TRANSMISSION\***—offered on ½-, ¾- and 1-ton models. Heavy-Duty **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **DIAPHRAGM SPRING CLUTCH**—improved-action engagement. **HYPOID REAR AXLE**—for longer life on all models. **TORQUE-ACTION BRAKES**—on all wheels on light- and medium-duty models. **TWIN-ACTION REAR WHEEL BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—greater holding ability on heavy-duty models. **NEW RIDE CONTROL SEAT\***—eliminates back-rubbing. **NEW, LARGER UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES**—give increased load space. **COMFORTMASTER CAB**—offers greater comfort, convenience and safety. **PANORAMIC WINDSHIELD**—for increased driver vision. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—easier, safer handling. **ADVANCE-DESIGN STYLING**—rugged, handsome appearance.

\*Optional at extra cost. Ride Control Seat is available on all cabs of 1½- and 2-ton models, standard cabs only in other models. "Jobmaster 261" engine available on 2-ton models, truck Hydra-Matic transmission on ½-, ¾- and 1-ton models.

## Construction News in Pictures... Continued



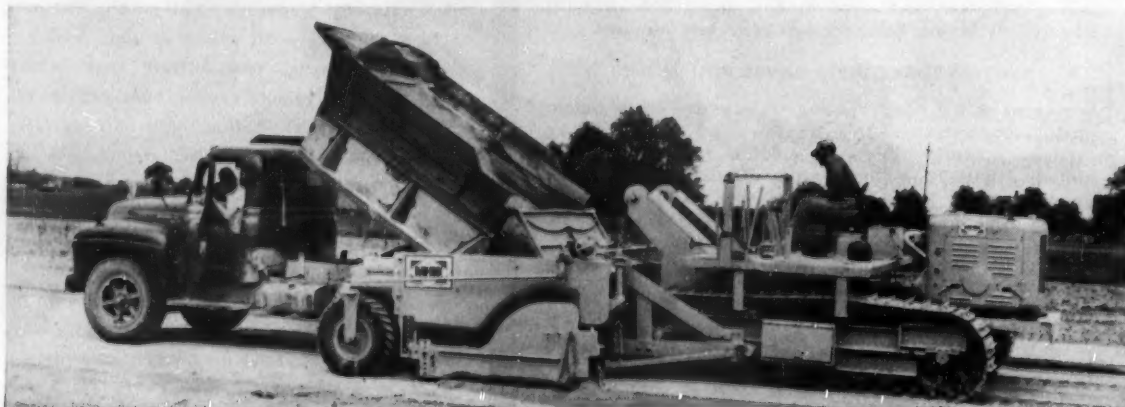
**HANDLE WITH CARE!** — A 250-ft section of the Teppan Zee Bridge for the New York Thruway across the Hudson River between Terrytown and Nyack is nudged into position by a half-dozen tugs. Structure was fabricated farther up river on two large railroad car floats, floated to site and lowered on piers. Tide swells and currents make it a tricky job.—Wide World photo.



**GARBAGE DISPOSAL** — Massive Drott bullclam shovel on the front of an International TD-18A crawler buries garbage and restores land surrounding a reservoir site at Meridian, Miss. Unit digs trenches 10 ft wide, 14 ft deep and 38 ft long. Garbage is burned along edge of pit and remaining refuse spread and compacted in trench, then covered with earth.



**LONG THROW** — Owner-operator Robert W. Gaskill reels in the loaded 1½-yd bucket on his Bucyrus-Erie 38-B dragline after casting it 125 ft down the bank on a 250,000-yd sloping operation for the Garden State Parkway in southern New Jersey. The Moorestown contractor is handling dredged river-bottom sand on the approach to the Mullica River Bridge.



**WIDE SPREAD** — Blaw-Knox is justifiably proud of the performance turned in recently by this Model P-150 base paver. On a 7-mi stretch of the Toledo (Ohio) Expressway it spread screenings

—¼ in. down to powder—to a width of 15½ ft in one pass, 9½ to 10 in. deep, averaging 3,200 to 3,500 tons per day. It features single-wheel steering, V-shaped hopper, oscillating screed.



## Another **NEW** Link-Belt Speeder development!

### ATTENTION ALL SHOVEL-CRANE BUYERS:

Before you buy a shovel-crane of *any* capacity for *any* application, be sure you check first with your Link-Belt Speeder Distributor. What you see here is *only one* of several great new, advanced Link-Belt Speeders—available NOW—and offering EXCLUSIVE advantages for you!



## *Here's the New **LS-68**—A Light $\frac{3}{4}$ -yard Shovel-Crane!* **Created to produce more work per shift... more profit per job**

**L**INK-BELT SPEEDER continues to make shovel-crane history! The LS-68 incorporates engineering advancements that easily brand it the top rig in the light  $\frac{3}{4}$ -yard class. Of course, it offers "Speed-o-Matic" power hydraulic controls, full field convertibility and many other great *standard* features which make the new Link-Belt Speeder line the talk of the industry. See your distributor or write for Book 2541 now for full facts on how you can make more money and turn out more work with the LS-68.

**LINK-BELT SPEEDER CORPORATION, Cedar Rapids, Iowa**

### A few of the new LS-68's big advantages

★ **Speed-o-Matic controls**  
Today's fastest and easiest-to-operate control system. Helps increase output up to 25%.

★ **Heavy, wide lower**  
Uses 24" or 30" shoes. Also available—wide, long frame permitting use of 36" shoes.

★ **6 conical hook rollers**  
assure longer roller and roller path life—eliminate center pin up-pull.

★ **Cast iron clutch shells**  
assure superior friction qualities, give longer lining life.

19,002

# LINK-BELT SPEEDER

BUILDERS OF A COMPLETE LINE OF CRAWLER, TRUCK AND WHEEL-MOUNTED SHOVEL-CRANES



ORDINARY TIRES ON TRUCKS (LEFT) WENT 74,000 MILES AND ARE READY FOR JUNK HEAP, REPORTS LEONARD BISGROVE (WITH CLIPBOARD), RED STAR EXPRESS.

## Road experience proves it: **MUCH LOWER COST PER MILE**



**FEWER ROAD DELAYS.** "We have to produce the on-schedule service we advertise," says C. R. Fischer, West Coast Fast Freight, Los Angeles, Cal. "To avoid risk of blowouts, we're switching to nylon 100%."



**MORE ORIGINAL MILES.** "We run over metal scrap every day," says Edward Benkert, Fairmount Foundry, Philadelphia, Pa. "We blew ordinary tires on original tread all the time; but we've yet to blow a nylon."



AUBURN, N. Y. HIS EXPERIENCE SHOWS THAT NYLON CORD TIRES (ON TRUCK AT RIGHT) WILL GIVE AN AVERAGE OF 21,000 ADDITIONAL MILES, CUT HIS TIRE COSTS 18.5%.

## FROM NYLON CORD TRUCK TIRES

Du Pont technicians, in cooperation with leading tire manufacturers, developed a cord that gives the best protection yet against tire failure, as proved by actual road experience. Truckers report that tires made with cord of Du Pont nylon give more mileage, more recaps, fewer road delays, more mileage for the tire dollar.

Here's why nylon gives the best performance. It has greater tensile strength, flex and abrasion resistance than any other fiber—all of which contribute to its ability to withstand road shock and bruise damage. Nylon is not damaged by the moisture that seeps into tire cuts. It withstands prolonged exposure to the heat developed in tires. And nylon cord tires run cooler. Prove to yourself the economy of nylon cord tires. Ask your dealer about trying a set today. (Du Pont makes nylon fibers, does not produce tires.)



REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY



**MORE RECAPS.** "We expect at least two recaps from nylon cords," says Louis Muha, New Jersey contractor. "Before nylon, we were lucky to get one recap. Nylon cords have the strength to take it on any job."



Here is

# Proof of LOAD DISTRIBUTION

The figures given in this ad were scaled at the Centerline Tank Plant, Detroit, Michigan by representatives of the Weightmasters Division of the Michigan State Highway Department.

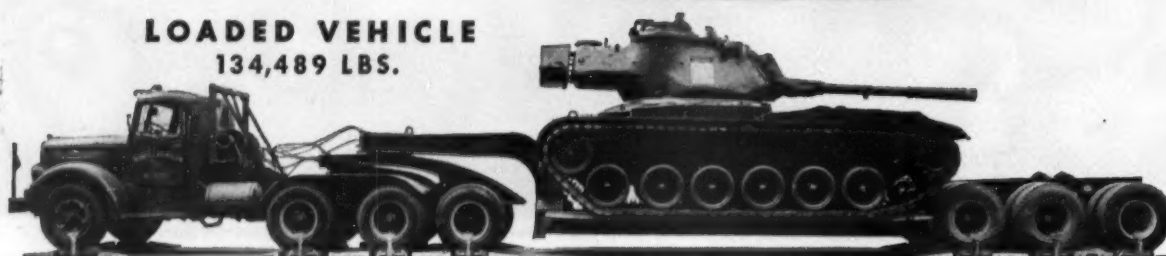


**EMPTY VEHICLE**  
41,340 LBS.

**WEIGHT OF LOAD**  
93,149 LBS.



**LOADED VEHICLE**  
134,489 LBS.



AXLE NO. 1  
AXLE WEIGHT—LBS.

2

3

4

5

6

7

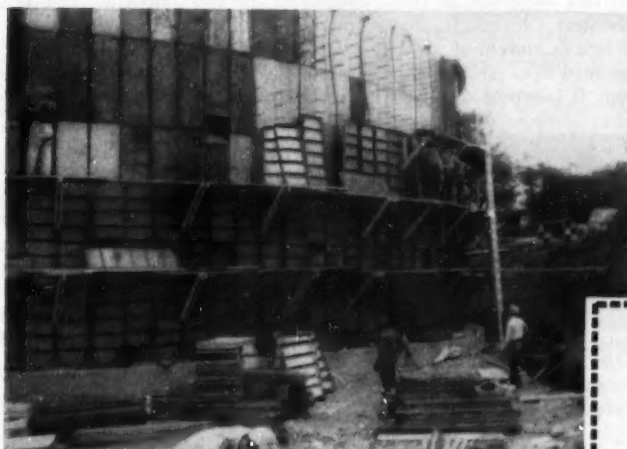
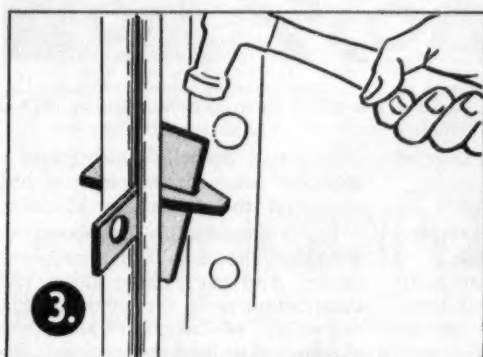
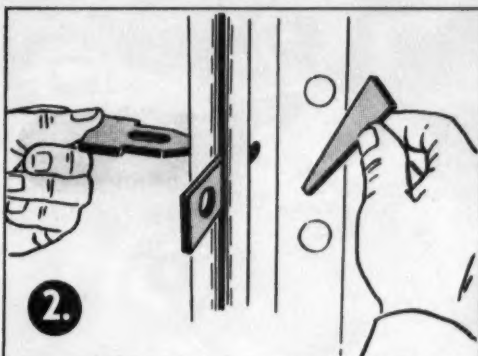
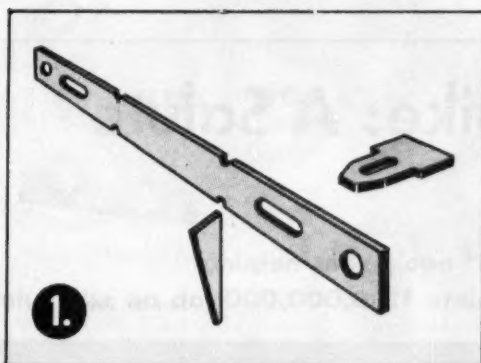
TOTAL WEIGHT

EMPTY VEHICLE	81% 8220	37% 7660	36% 7440	24% 4920	22% 4420	20% 4450	20% 4230	30% 41,340
WEIGHT OF LOAD	19% 1820	63% 13100	64% 13040	76% 15270	78% 15870	80% 16909	80% 17140	70% 93,149
LOADED VEHICLE	10040	20760	20480	20190	20290	21359	21370	134,489
TIRE SIZE	10:00	10:00	10:00	10:00	11:00	11:00	11:00	
NO. TIRES	2	4	4	4	4	4	4	26
TOTAL TIRE WIDTH	20	40	40	40	44	44	44	
AXLE SPACING	1 to 2 11 ft. 6 in.	2 to 3 4 ft. 6 in.	3 to 4 4 ft. 0 in.	4 to 5 25 ft. 1 in.	5 to 6 4 ft. 1 in.	6 to 7 4 ft. 3 in.	FIRST TO LAST 53 ft. 7 in.	



THE TALBERT CONSTRUCTION EQUIPMENT CO., of Lyons, Illinois  
manufactures a complete line of low-bed trailers and dump semi-trailers

**THE TALBERT-WAY IS THE EASY WAY**



**IRVINGTON FORM & TANK CORPORATION**  
20 Vesey Street, New York, N. Y.

Atlas Compo Form Division

## Our Form Know-How Gets Your Building Know-How Under Way Faster

YOU'RE specialists in pouring concrete. WE'RE specialists in supplying you the forms that help you do a consistently better job at a price that undercuts competition by shaving labor costs and stepping-up pouring time.

ATLAS COMPO FORMS are the fastest and most easily assembled lightweight forms in the field. Three quick steps get the forms tied and ready for pouring in jig time:

*with ATLAS COMPO FORMS  
3 quick steps mean  
you're ready to pour!*

1. Only three units are needed to assemble the form.
2. Slip panel into position with Flat Bar Tie between panels. Put Key Wedge through frames and slot in Bar Tie.
3. Stick Wedge in slot in key wedge. Drive fast with hammer — the panel's ready for use.

ATLAS COMPO FORMS are plenty tough and strong—but the largest panel weighs only 72 lbs. and can be easily handled by one man. An improved pressed steel channel of our own design frames and reinforces the plastic faced plywood of the panel, which may be re-used as often as forty times without reversing.

With COMPO there's no need for walers, wooden wedges or nail driving. Alignment is maintained by just one row of a pair of 2 x 4's.

Builders and contractors all over the country are finding our "know-how" the ideal teammate for theirs. Find out how you can profitably put it to work for you. Write today—or use the handy coupon to get complete information.

Irvington Form & Tank Corp  
20 Vesey St., N. Y. C. Dept. M

CME-9

Please send ☐ Folder on Atlas Compo Forms  
☐ Concrete Checker Card. ☐ Man to see me.

NAME \_\_\_\_\_

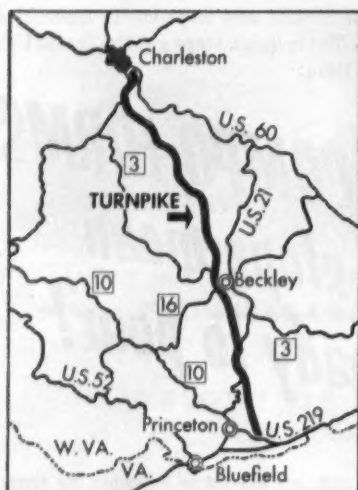
FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_

## CATERPILLAR

# West Virginia Turnpike: A Salute to Construction Skill

280 units of CAT\* equipment helping contractors complete \$100,000,000 job on schedule



A DW21 with No. 21 Scraper, owned by Oman Construction Co., is push loaded on a section of the turnpike near Beckley, W. Va.

The 88-mile West Virginia Turnpike is expected to be ready for use this fall. Built through mountainous country for most of its length, the project has required moving some 31,000,000 cubic yards of earth for fill. During the spring and summer 3,000,000 tons of crushed rock has been spread in a 14-inch blanket, the full width of the grade, and 1,600,000 square yards of concrete paving have been laid.

This huge earthmoving job has been handled fast. During good weather a million cubic yards a week was the

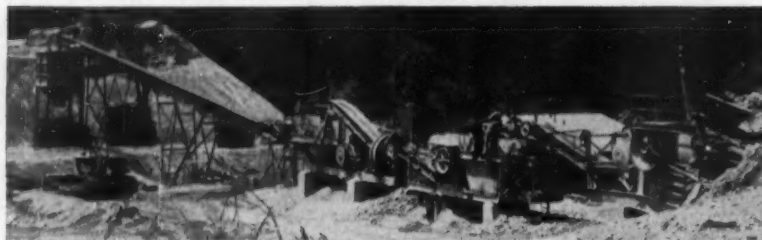
regular rate, and a high percentage of the material was rock.

With a maximum grade of 5 per cent, the new turnpike follows the sides of valleys throughout much of its length. The standard roadway is 50 feet wide, but many miles of extra-width grade have been built to take care of future widening of the road. Starting at 600 feet elevation in the Kanawha Valley near Charleston, the highway climbs to a maximum of 3200 feet at Flat Top, then descends to 2000 feet at Princeton. It is expected to cut

driving time by half, reducing over a thousand curves in the old road and shortening the distance by 32 miles.

Scores of contractors and subcontractors have shared in this accomplishment. And everywhere along the construction route the famous "highway yellow" of Caterpillar\* heavy-duty machines has been in evidence. Included in the equipment are D8, D7 and D6 Tractors, DW20 and DW21 wheel-type Tractors, with matching Caterpillar-built Bulldozers and Scrapers, Motor Graders, and Cat Engines and Electric Sets powering shovels, compressors, crushers and light plants.

Experienced contractors know machines built by Caterpillar are money-makers. They can be depended upon to stay at work month after month, under the roughest conditions, with a minimum of down time. And when service or parts are needed, they can be supplied quickly by the nearby Caterpillar Dealer.



Two big Cat Diesel Electric Sets—a D386 and a D364—furnish all power for this crusher plant, operated by Central Materials Corp., near Kingston, W. Va.

**CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS, U.S.A.**

\*Both Cat and Caterpillar are registered trademarks—®



## Check the New Tax Law

THE NEW TAX BILL recently signed into law gives contractors a break. Probably the most important provision is that investments made after Dec. 31, 1953, in new plant and equipment can be depreciated at a faster rate than heretofore. It gives you far more leeway in deciding just how you will write off your equipment, but it does not alter the fact that the total depreciation period should extend over the machine's so-called useful life.

The most general depreciation system used until now has been the "straight line" method. In this the original cost of the machine is written off in equal yearly installments spread over the expected life of the equipment. However, this does not accord with the actualities—under normal conditions the value of the machine drops most rapidly during its first year of use, and more gradually thereafter.

The new tax law takes cognizance of this economic fact. It permits accelerated depreciation schedules that result in larger write-offs during the early years of equipment life and smaller ones later.

One such scheme is the "declining balance" method. Under this, the yearly depreciation percentage is twice

that of the straight line method, but is applied to the depreciated value of the machine. Thus a new \$100,000 shovel with an estimated useful life of eight years could be written off at \$25,000 for the first year, \$18,750 the second (25% of the remaining \$75,000 balance), etc., rather than at a straight \$12,500 (12½%) per year. Other permissible depreciation schedules give somewhat similar fast write-offs.

In light of this, it would be well to review your accounting procedures and, better yet, your entire equipment philosophy. Because the accelerated provisions apply only to *new or reconstructed* equipment (and what reconstructed means is open to question) it may be advantageous, tax-wise, to purchase unused machines to fill out your equipment spread, instead of buying older rigs. Rather than renting extra machines for a specific job, you might want to buy new ones and later sell them. And you should check your equipment-purchasing schedule to insure that you are disposing of your old machines and buying new models at the most advantageous time. Remember: A good tax man can be as valuable to you as a good superintendent.

## Search Your Corporate Soul

LATEST ATTEMPT to improve relations between general and subcontractors is a new Invitation to Bid form endorsed by the Associated General Contractors of America. The form includes a pledge that the contractor asking for a quotation "intends to conform to the letter and spirit" of AGC's Code of Ethical Conduct.

Part of that code is printed on the back of the form. It is worth repeating here:

"The operations of the contractor are made possible through the functioning of those agencies which furnish him with service or products, and in contracting with them he is rightfully obligated by the same principles of honor and fair dealing that he desires should govern the actions toward himself or architects, engineers and client owners.

"Ethical conduct with respect to subcontractors and those who supply materials requires that:

1. Proposals should not be invited from anyone who is known to be unqualified to perform the proposed work or to render the proper service.

2. The figures of one competitor shall not be made known to another before the award of the subcontract, nor should they be used by the contractor to secure a lower proposal from another bidder.

3. The contract should preferably be awarded to the lowest bidder if he is qualified to perform the contract, but if the award is made to another bidder, it should be at the amount of the latter's bid.

4. In no case should the low bidder be led to believe that a lower bid than his has been received.

5. When the contractor has been paid by a client owner for work or material, he should make payment promptly, and in just proportion, to subcontractors and others."

That the above is worth following, to the benefit of all segments of the industry, goes without saying. But they will be just more empty words unless certain benighted contractors search their corporate souls and change into decent businessmen who can honestly say, "That's just the way we operate."

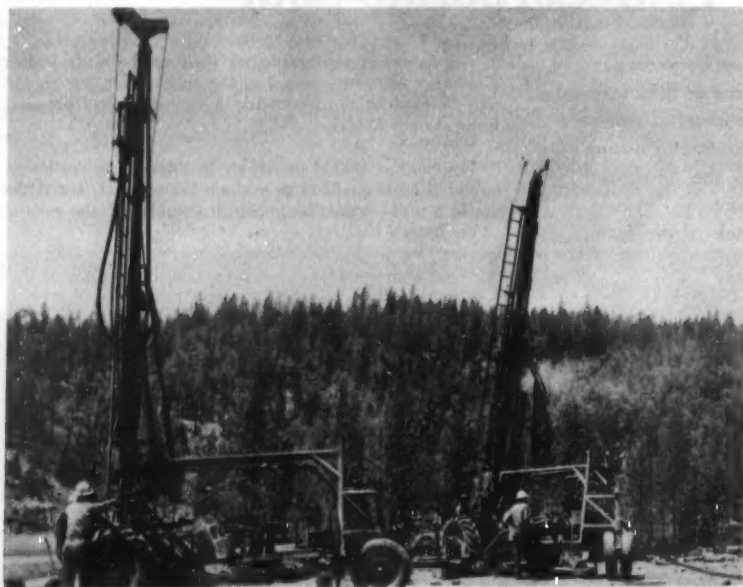


**BIG CAPACITY EQUIPMENT** is the key to fast construction of earth- and rock-fill dam. Euclid end-dump trucks are loaded with rock by

Bucyrus-Erie 5-yd shovel. Euclids have Allison retarder mechanisms for better control on down-hill hauls.

## Equipment Geared for Big Fill Job

By L. L. WISE, Associate Editor



**NEW DRILL RIG** makes one of the first appearances on a heavy construction job. At Cherry Valley Dam, these carriage-mounted Joy Challengers drill 4-in. blast holes through 60 ft of granite. Contractor added snorkels to carry dust away from drillers.

**BUILDING A 7,000,000 YD** earth- and-rockfill dam in two short construction seasons demands lots of good equipment working on a well-organized basis. That is exactly what the Guy F. Atkinson Co. is achieving on Cherry Valley Dam in California's Sierra - Nevada. Weather at the nearly mile-high elevation restricts work on the earth core portion to six months—June to November.

The \$14 million project will add capacity to San Francisco's Hetch Hetchy water supply and will also provide substantial flood control benefits.

The Atkinson team had hopes of placing the 3,000,000-yd rolled earth core of the dam in one season. With a 6-month long work period that would mean 500,000 yd of fill a month, or an average of 20,000 yd a working day. However, excess moisture in the main earthfill borrow pit restricted operations in June and July so production reached only 14,000 yd a day. Drier



SKID-MOUNTED MONITOR sluices rockfill with water volume three times that of fill volume. Intelligent monitors are aimed hydraulically with four controls powered by water-line pressure. The 440-hp pumps feed water to the monitors at 100 psi.

late summer and fall weather may permit some catching up. But it looks definite now that two seasons will be necessary.

Equipment emphasis is on big capacity, high-speed hauling units. Earthfill haul is 2 mi down hill. Rockfill haul is less than half a mile.

Work horses of the rock-moving fleet are 20 Euclid end-dump trucks, each capable of carrying 12 yd of fill. All of the Euclid units are equipped with Allison hydraulic retarder mechanisms for better control on the down-hill hauls.

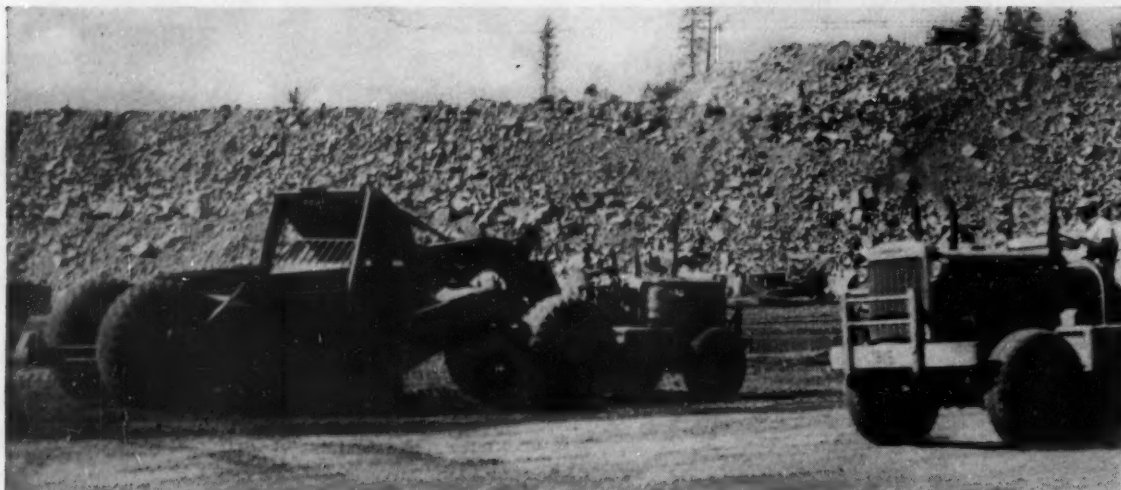
For earthfill haul, Atkinson has six 13-yd Euclid bottom-dump wagons and 14 DW20 Caterpillar scrapers with built-up bodies having 18-yd water level capacity. These are supplemented by eight 30-yd Southwest bottom-dump trailer units with Euclid tractors (except that one has a Kenworth tractor unit). This is the third major use of the big Southwest trailers in California.

Loading all this equipment are four shovels and two draglines, as well as a Euclid loader and four Caterpillar D8 push-cats. All of the shovels and draglines are Bucyrus-Erie with buckets ranging from



TRACTOR-MOUNTED MONITOR is fed by 8-in. water line handled by Hyster winch and frame. The contractor found, however, that the Caterpillar D4 tractor was not large enough to maneuver the heavy lines efficiently, and all monitors were skid-mounted.





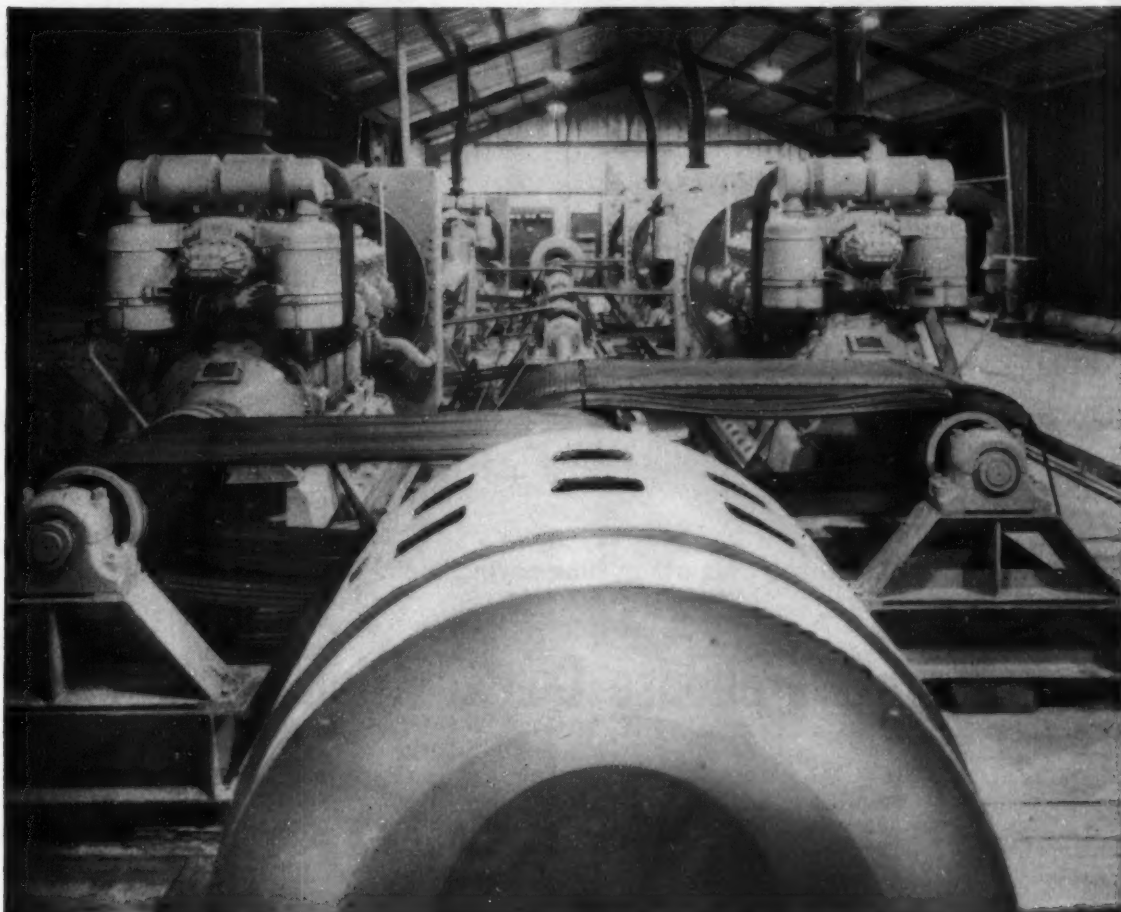
**SCRAPERS HAUL MOST** of the earth fill at Cherry Valley Dam. The contractor is using 14 Caterpillar DW20 units with bodies built up to 18-yd water-level capacity. Six Euclid 13-yd bottom-dump wagons also haul fill. Note rockfill in background.



**TRAILER CARRYING 30 YD** of fill is pulled by Euclid tractor. These big Southwest units are being used for the third time on major work in California. Fill is placed in 6-in. lifts and compacted by pneumatic rollers. Earthfill controls job progress.



**LOADER AND TRAILER COMBINATION** maintains high production on earth-fill work. Allis-Chalmers tractor equipped with a torque converter pulls a Euclid loader, as material flows steadily into a 30-yd Southwest trailer hauled by a Kenworth tractor.



CENTRAL POWER STATION consists of two 1,000-kw Allis-Chalmers V-belt connected to a single shaft. Power operates pumps and generators powered by five 400-hp Caterpillar diesel engines, all electric shovels and services camp facilities.

2½ to 6 yd. The Euclid loader is pulled by one Allis-Chalmers HD20 with a torque converter.

In compacting the earthfill core, specifications call for results rather than method. Thus inspectors will not have to be on the embankment continually counting roller passes. Density tests will be made, and 100% of the tests must show a field density greater than 90% of maximum density of the soil; 90% of the tests must show density greater than 91% of maximum; and 50% must exceed 94% maximum.

To achieve these results fill will be placed in 6-in. layers. Compaction will be accomplished by a 100-ton Southwest pneumatic roller and two 50-ton Willamette Iron & Steel Co. pneumatic rollers. Also to be used are four sheeps-foot rollers. And the hauling equipment will be routed over the fill to aid compaction.

Rock quarries are worked by eight of the new Joy Challenger drills. This is one of the first heavy

construction jobs on which these carriage-mounted rigs have been used. At Cherry Valley they are drilling 4-in. holes through granite to 60-ft depths. Results so far have been excellent. Atkinson has added snorkels on the drills to carry dust away from the drillers. And a blacksmith shop setup has been installed to make 20-ft lengths of drill steel. Drill rod is upset at each end and threads cut in to receive a special connecting nipple.

Rockfill sluicing is accomplished by three Intelligiant monitors mounted on skids. To achieve greater maneuverability, they were originally mounted on Caterpillar D4 tractors with hose lines handled by a Hyster winch and frame. But the tractors did not have enough power to move the 8-in. hose lines efficiently, and skid-mounting was adopted instead.

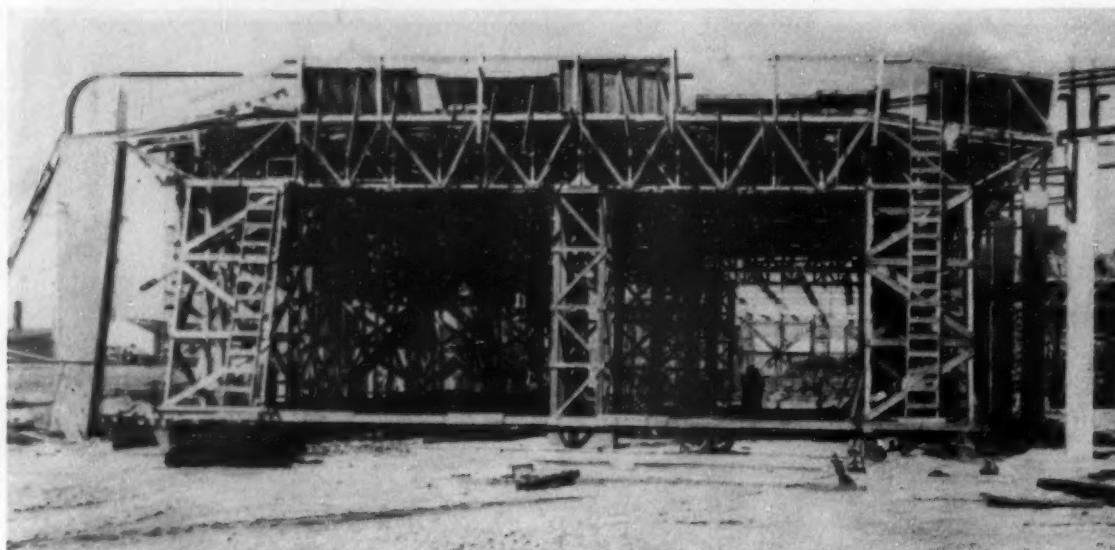
The monitors are aimed hydraulically with four controls powered by the water-line pressure. Two 440-hp electric pumps erected on a

mid-stream log crib feed water to the monitors at 100 psi. The 3-in. nozzles put out water at 4 cfs.

A central powerhouse provides electricity for the job. Two 1,000-kw Allis-Chalmers generators are powered by five 400-hp Caterpillar diesel engines all hooked on to the same shaft through V-belts.

Heading up the work for Guy F. Atkinson Co. is A. H. Steiner, project manager. Erroll Platt is assistant project manager. Ray N. Atkinson is assistant general superintendent. Henry Quade is project engineer. Joe Canto is day shifter and V. A. "Slim" Chapman is swing shifter.

Cherry Valley Dam is a project of the Public Utilities Commission, City and County of San Francisco, for whom Oral L. Moore is resident engineer. H. E. Lloyd is chief engineer of the Hetch Hetchy division of the Utilities Commission. Wesley F. Getts has been in direct charge of design of the Cherry Valley Project.



**This unusual traveling form, plus other time-saving ideas . . .**

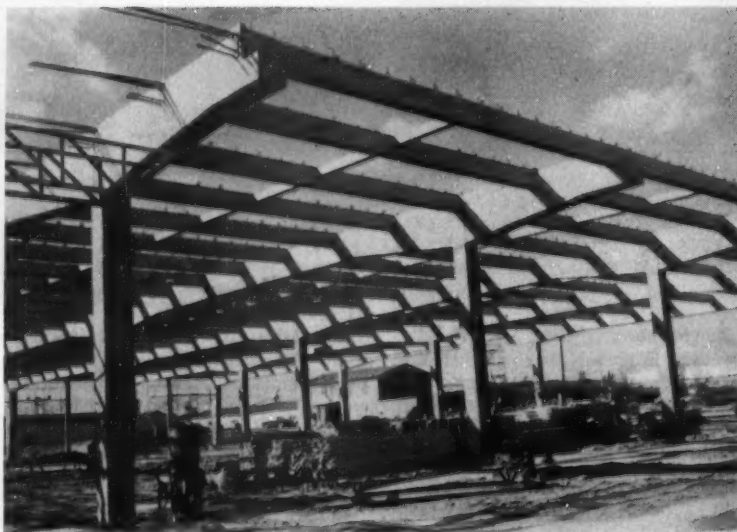
## Slash Warehouse Construction Costs

USE OF A TRAVELING FORM of unusual design in the construction of a reinforced skeleton superstructure, plus the use of regular highway equipment and methods in pouring floor slabs, contributed to a reduction in construction costs of two warehouses to be used for the Air Material Command, Robins Air Force Base, Warner Robins, Ga.

R. P. Farnsworth & Co., Inc., of New Orleans is the contractor for the \$5,500,000 contract which is being constructed under the supervision of the Corps of Engineers, U. S. Army.

The warehouses are constructed of reinforced concrete framing, precast concrete roof slabs and concrete block exterior walls. Average height is 24 ft 3 in. from finished floor to top of roof. Each building is composed of a number of identical units, 200x400 ft. There are 7 units in one building for an overall size of 400x1,400 ft, with 8 in the other for an over-all size of 400x1,600 ft. The units are separated by a 3-in. expansion joint running across the building, and another similar joint parallels the long dimensions of each structure.

The concrete superstructure is of a skeleton type composed of 33-ft, 3-in. c.c. rigid frames spanned by concrete joists of 8 ft  $\frac{5}{8}$  in. c.c., all cast monolithically. Small concrete strut beams were poured monolithically



**CONCRETE SUPERSTRUCTURE** is of a skeleton type composed of 33-ft, 3-in. rigid frames spanned by concrete joists of 8 ft  $\frac{5}{8}$  in. They are cast monolithically.

and serve for horizontal bracing of the joists.

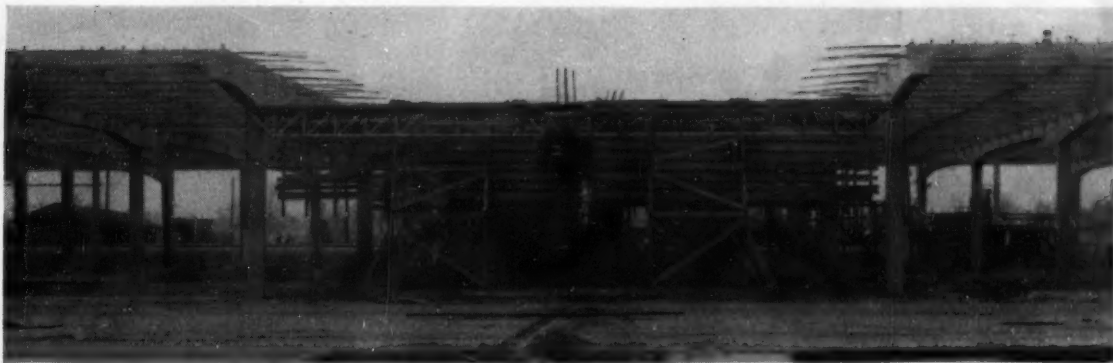
The continuous reinforced concrete rigid frames have six 66-ft spans to make the 400-ft width, are 33 ft on centers, 20 in. wide and vary in depth from 3 ft to 4 ft 6 in. They are connected at 8 ft, 3-in. intervals with monolithic roof beams 9 in. wide and 18 in. deep.

The roof is precast channel plank

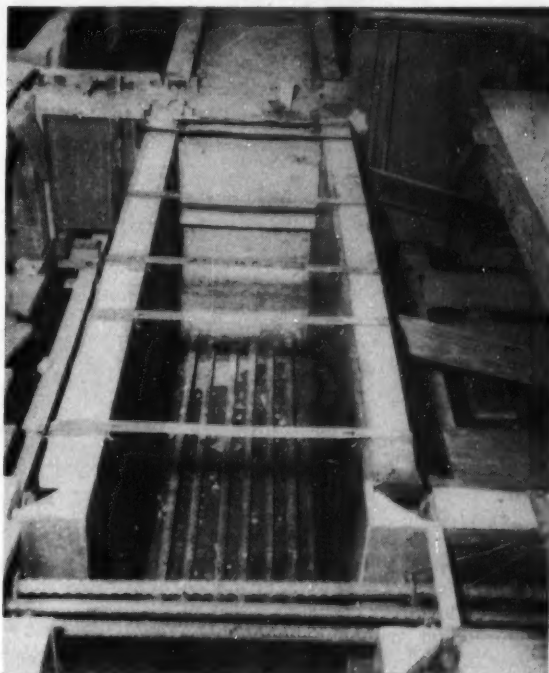
made from lightweight foam slag covered with 5-ply roofing. There is a 2-in. fill of vermiculite between channel plank and felt.

The concrete floors were poured by highway methods, using highway equipment, in lanes 24 ft wide with the entire area equivalent to about 10 mi of 24-ft wide roadway. Use of this equipment made it possible to complete floor paving at a

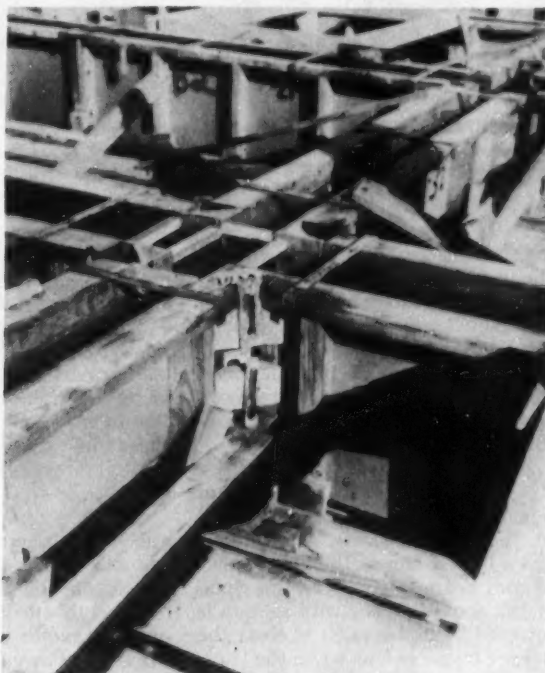




BECAUSE OF A DISSIMILARITY of construction of the warehouse units adjacent to expansion joints, this auxiliary traveler was designed.



ALL FORMS on the main traveler were constructed for easy removal after pouring and re-assembling when the unit was moved forward. This idea helped reduce working days from 14 to 6.



PROBLEM OF FORMING beams and girders so they could be easily stripped and re-assembled was overcome by building separate corners for the intersection of beams with form tie wedges.

rate of about 17,000 sq ft per day, with a top of 28,800 sq ft being poured in one day. Mechanical trowels were used to produce a hard trowel finish.

Before placing the concrete floor, slab, column footings were poured to the underside of the floor slab, then exterior wall footings along with the firewall footings. Steel in the column footings was cut off and bent over to allow equipment to pass. After floor slabs were poured, the column steel was straightened and welded to steel the height of the column. Columns were then boxed and poured.

With this type of structure, it

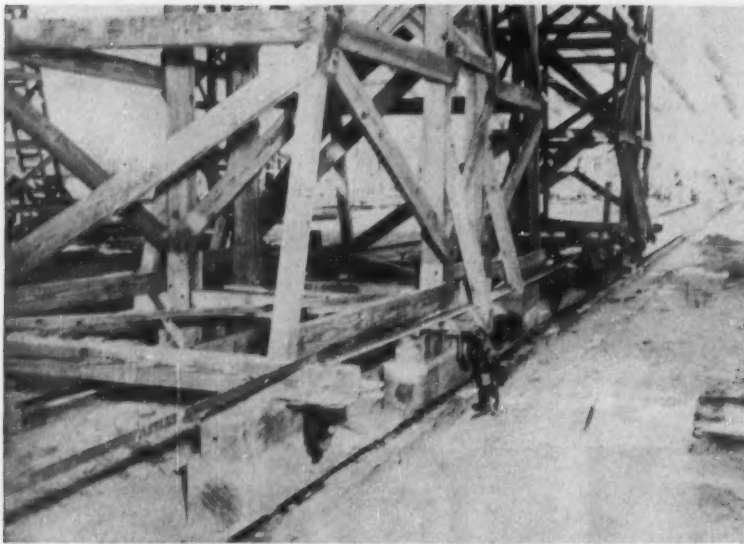
was evident there would be a terrific problem of constructing forms, disassembling them and then putting into place at the next location. Also the similarity of units offered the opportunity for some type of structure which could be used as a unit and moved ahead with construction progress.

Under the direction of H. B. Shepard, vice-president, the Farnsworth company engineers drew up a set of plans prior to construction and made studies as to cost and possible savings. The studies indicated the initial cost of the traveling crane structure would be relatively high, but it would be more

than offset in savings in labor costs.

Another advantage in the use of a traveling form would be to provide shoring, beam and girder soffits constructed as a unit and after erection it would not have to be dismantled. The use of structural steel framing reduced the amount of shoring required. To raise and lower the traveler required only jacks, with a winch used to move the traveler ahead.

The main traveler covers an area 133x200 ft and is made up of three units which join at rigid frame columns. These sections are tied together across the columns while the structure is being poured. It is



**MAIN SUPPORT TOWERS** are cribbed up and wedged when the traveler is in position. Jacks were used to raise and lower the traveler. A winch pulled it ahead.

then disassembled and moved ahead as separate units.

Two steel trusses under each frame girder are supported by timber towers—one at each end and at the center of the 66-ft, 5-in. span. Bolted across the trusses are 4x4's which carry the girder soffit and forms.

Roof beams are supported by steel joists, which in turn rest on a jacking truss at each end adjacent to the main trusses. Continuous 4x4's bolted across the top flanges of roof beam joists carry the beam forms above. This entire section is lowered 30 in. by jacks to clear the deeper frame beams when the traveler is moved ahead.

The towers are supported on timber cribbing and wedges while concrete is being placed. Each tower is provided with flanged wheels and can be lowered by jacks. The entire unit is pulled ahead by a winch.

The contractor encountered the problem of forming the beams and girders so they could be easily stripped and re-assembled. This was accomplished by building separate corners for the intersection of beams, the corners being held in position by standard form tie wedges.

Because there is a dissimilarity of construction of the warehouse units adjacent to expansion joints, it was necessary to design and construct an auxiliary traveler. Columns along these joints were spaced closer together than rigid

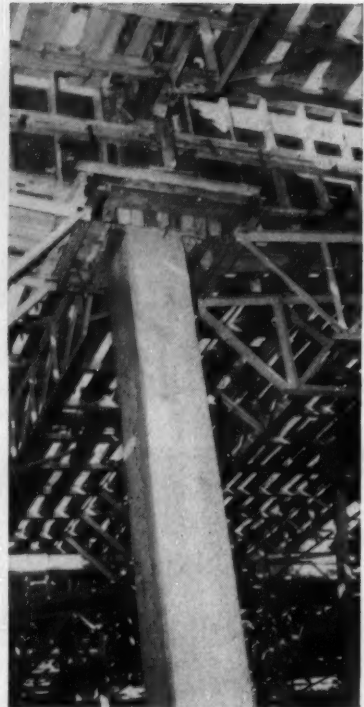
frame columns, thus preventing the main traveler from passing between them.

The contractor obtained permission from the Corps of Engineers to form a construction joint in roof beams at rigid frames, and a section of each unit was omitted when the main traveler was poured.

Under this type of construction, it was possible for the auxiliary traveler, of similar design and construction, to be used to fill in these sections after the main traveler moved ahead.

The full effectiveness of the use of the traveler was apparent when progress showed construction time being reduced. It required just 14 working days to complete the first complete cycle on the main traveler. However, after going through the cycle three times the working days were reduced from 14 to 6 days.

On the first setup of the traveler the columns were formed with the



**HERE'S THE FORM** construction of the traveler showing bracing and how the travelers were joined together at the columns.

superstructure and poured one day ahead. However, it was found that this delayed progress. On subsequent setups the columns were poured before moving the traveler into position. Columns were braced in each direction with two 3-in. channels attached with turnbuckles for easy alignment.

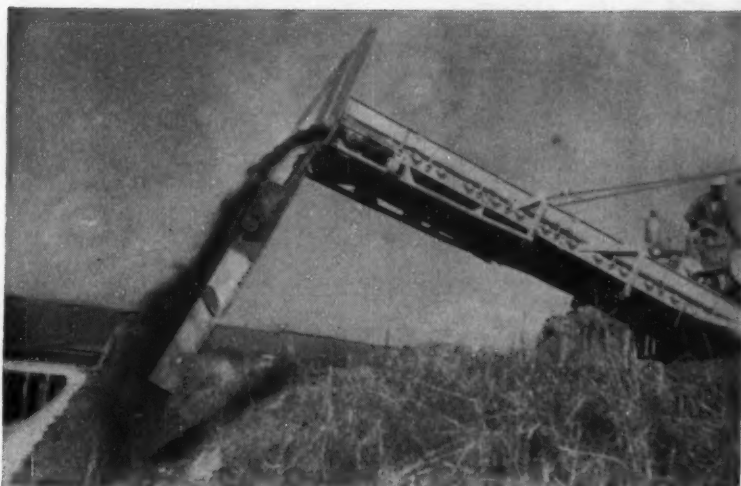
For R. P. Farnsworth & Co., Inc., George Coffey was project manager; D. D. Davis, project superintendent, and M. L. Nash, project engineer.

Supervision of construction was by Corps of Engineers under direction of E. F. Thomason, project engineer, and W. H. Shepherd, chief inspector.

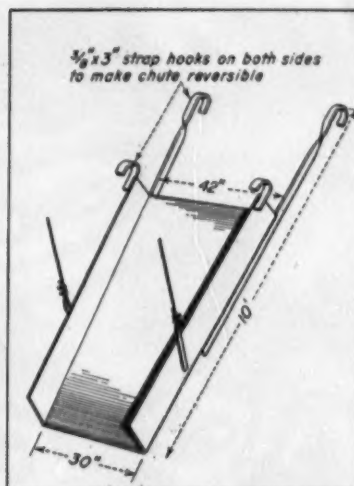
## AC to Supply Rebuilt Pumps

THE AC SPARK PLUG DIVISION of General Motors is now marketing a complete line of rebuilt fuel pumps. The company makes it clear however, the rebuilt line is merely to supplement new fuel pump distribution. Distribution of the re-

built pumps will be handled through the same dealer outlets as new fuel pumps. To take care of the anticipated demand for the rebuilt units, AC has set up a separate department to disassemble, clean and rebuild the trade-ins.



DISCHARGE CHUTE was hung on the end of the DoMor belt by  $\frac{3}{8}$ x3x30-in. iron straps. The chute has 42-in. throat opening, 30-in. discharge tip and is 10 ft. long.



TWO SETS OF STRAPS made the chute reversible to more accurately control fill. Fill and finish grade with these two attachments was at the rate of 220-cu yd per hr.



FOR FINISH GRADE WORK a standard 12-ft blade was attached to end of motor grader blade with angle iron. A cable from blade through a sheave to scarifier arm gives control.

## Two Job-Made Rigs For Sidecast and Finish-Grade Work

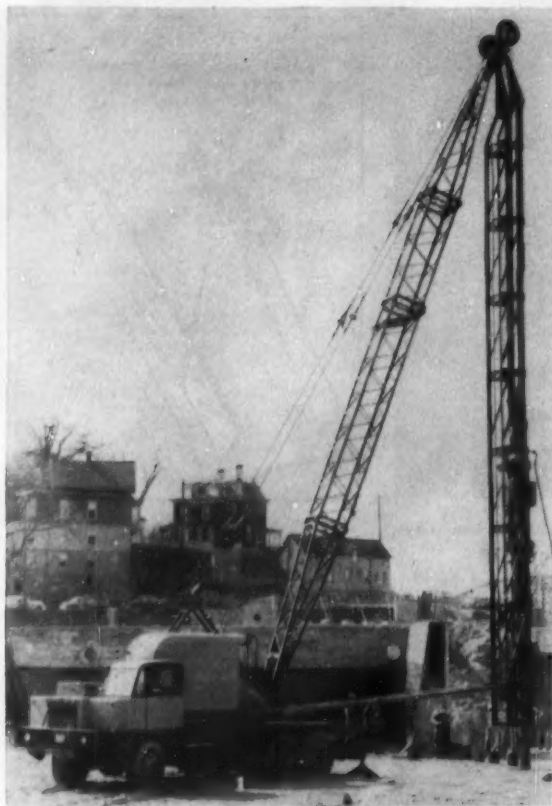
TWO SPECIAL ATTACHMENTS with a Caterpillar No. 12 motor grader and a DoMor elevating grader on the Friant-Kern irrigation canal project near Visalia, Calif., helped Roberts Construction Co. of San Bernardino sidecast a fill and finish-grade it at the rate of 220 cu yd per hr.

One of the attachments, a discharge chute hung on the end of the DoMor belt by a couple of  $\frac{3}{8}$ x3x30-in. iron straps, permitted the material to be placed accurately on to the upper channel wall. The chute was 10 ft long, 42 in. wide at the throat opening, 30 in. at discharge tip and 8 in. deep. Two sets of iron straps made it reversible.

To speed finishing of the 38,500 yd of fill required, an additional 12-ft sloping moldboard was attached to the regular No. 12 motor grader blade by two pieces of angle iron. Control of the extra blade was by cable run through a snatch block on a bracket forward of the main frame and thence back to the scarifier arm.

Both attachments were designed by Orland Shoopman, Caterpillar motor grade specialist, and built by the contractor, Roberts Construction Co.





**MONOTUBE PILES**, 30 ft long, are driven by a Lorain Moto-Crane with 10-ton Vulcan hammer and 60-ft boom on bridge crossing Shetucket River in Connecticut for Jones Construction Co.



**HAUNCH GIRDER**, 263 ft long and weighing 200 tons, is lifted off barge and placed 135 ft in air on Raritan River Bridge by Bethlehem Steel Co. for New Jersey Garden State Parkway.

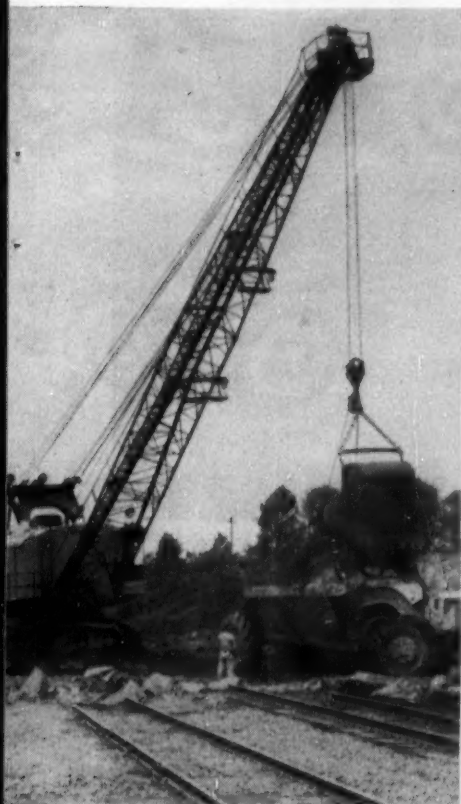
## Highway Construction Is Big...



**WEST VIRGINIA TURNPIKE CUT** is excavated by 5½-yd Manitowoc 4500, used by Latrobe Road Construction Co., Latrobe, Pa. It is loading into a 22-ton Euclid rear-dump. Big shovel is powered by a 550-hp Cummins diesel-with-torque converter package.



**OHIO TURNPIKE BIGGIE** is this 7½-yd Marion electric shovel loading a Mack for Western Contracting Co.

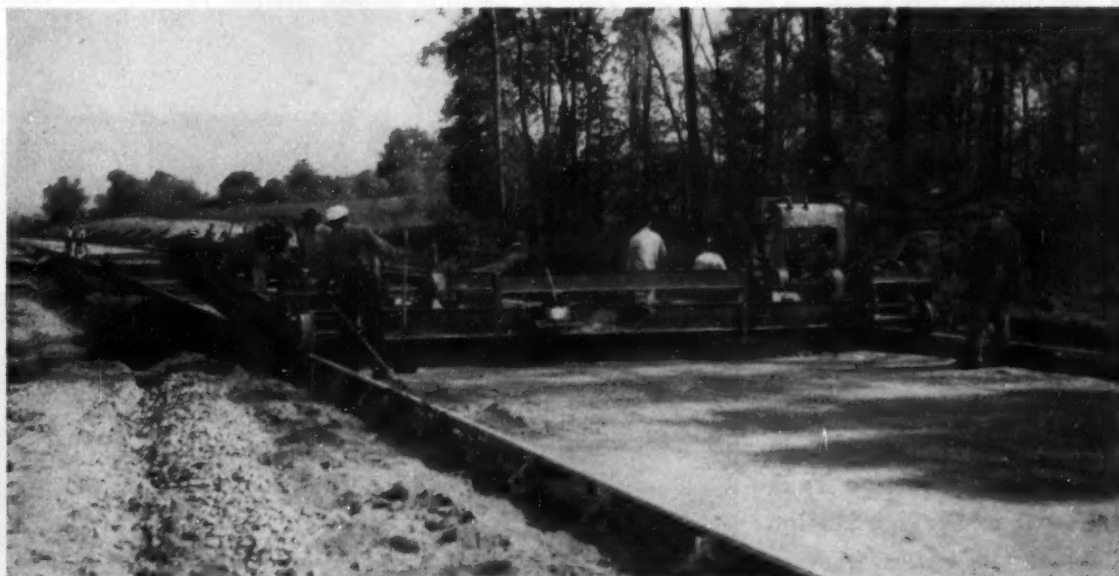


MARION ELECTRIC 90-ft boom dragline with 2½-yd bucket loads Euclid on Ohio Turnpike for Western Contracting Co.



RUBBER-MOUNTED Blaw-Knox bituminous paver-finisher on Pennsylvania highway lays a 10-ft finishing course near Pittsburgh for the Harrison Construction Co. Paver was developed by Apsco (CM&E Jan., p.116) produced by Blaw-Knox.

## ...And It Uses Big Equipment



HELPING TO COMPLETE final section of the Pennsylvania Turnpike is this Buckeye (Gar Wood) 24-ft finegrader working on the Delaware River Extension of the famous road, near Conshohocken.

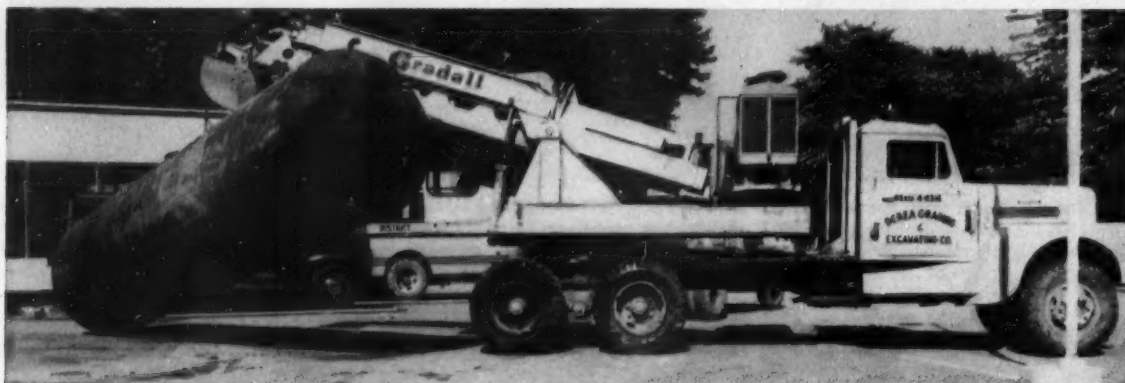
It is finegrading material to a depth of 6 in., and the surface then is compacted by a 6-ton, 3-wheel Huber roller. This stretch is by C. J. Langenfelder & Son, Inc., Baltimore.



**1** PILE-DRIVER HEAD attached to the Gradall bucket and manipulated by the hydraulically controlled 24-ft boom breaks up 10- and 14-in. concrete pavement over the tanks. Area 28x32 ft is uncovered. Broken concrete is trucked to a fill area near by.



**2** UNCOVERING AND DIGGING OUT TANKS. Tilting feature of bucket permits easy removal of dirt around units.



**5** OLD STORAGE TANK is loaded on truck and carried away from excavation. New tank is picked up by machine and brought into position for immediate installation, permitting service station to carry on.

## A 4-Day Quickie...

**Versatile Earthmover Performs All Operations in Fast-Moving Storage Tank Renewal, as Service Station Carries On**



**7** NEW TANK IS SWUNG into position by Gradall boom and lowered accurately into hole. Rope fastened to tank enables one man to steady it.





**3** TO LOOSEN PIPE CONNECTIONS a wrench is fastened to the pipe and bucket exerts horizontal pull without breakage.



**4** OUT OF THE HOLE, filled with water by seepage, comes the tank, snaked from its mud bath by a pull on one end to break the suction. Resetting chain to center of tank, boom lifts it clear, swings it away to be loaded on truck.



**6** BASE FOR NEW TANK is now prepared. After area is pumped free of water, 8-in. excavation is made, filled with sand to serve

as a cushion. In each case, cushion is graded level, as required. Note that business at station goes on as usual.



**8** BACKFILLING WITH SAND is next operation, accomplished after pipe connections are made and electrodes installed.

REPLACING GASOLINE STORAGE TANKS is at best a costly job, and when in addition, the service station must close for several days, a loss of profit is involved.

The Standard Oil Co. of Ohio decided to attempt a replacement of four corroded tanks at the Sohio Station in Westlake, Ohio, without interrupting business and called in the Berea Grading & Excavating Co. of Berea, to work out a method of procedure. Max Gaspard, owner of the firm, hit upon the idea of using one piece of equipment, a multi-purpose Gradall, for the entire job. Four days later the old tanks were out and new ones installed—at a moderate cost and without loss of business.

The Gradall with the aid of a pile-driver head first broke up the concrete pavement. Then it opened up an area 28x32 ft to a depth of approximately 9 ft, dug out the tanks and towed them away. The preparation of the old tank beds came next with an 8-in. excavation for each, filled with sand to grade.

The new tanks were now swung into position and lowered to their beds, and the Gradall backfilled the excavation, leaving the job ready for repaving.



**PIPE-MAKING MACHINE** winches itself through a round-bottom trench, as concrete is chuted into the hopper. Mechanical tampers move the mix down into the form.

## Rig Pours Pipe in Place

A MACHINE THAT pours a continuous, seamless pipe has been developed by Elmer Tunsen of Modesto, Calif. Working in a round-bottom ditch, it will pour from 100 to 125 ft of 30- or 36-in. pipe per hr. The rig winches itself along as concrete is dumped into a hopper and forced into a boot-like structure that forms the pipe.

The upper half of the pipe's outer surface is formed by a crescent-shaped casting. Sleeve-like forms of sheet metal are linked together over part of the boot to shape the inside of the pipe.

From 4 to 6 men are required to lay the pipe, depending on whether transit- or site-mixed concrete is used. One man operates the gasoline engines that power the winch and tampers, a second man sets form plates inside the boot, and the others handle the concrete. Pipes ranging in size from 24 to 48 in. in dia and from 2½ to 3½ in. in dia have already been laid. Generally a 6-bag mix is required. Maximum allowable head is 20 ft.

Jourdan Concrete Pipe Co. of Fresno, Calif., has the franchise to manufacture and install the poured-in-place pipe.



**POURED-IN-PLACE PIPE** is built up against both sides of the trench. Sheet metal forms shape the inside of the pipe. About 6 men are required when concrete is mixed at the site.



**BOOT-LIKE CASTING** at the rear of the machine forms the pipe. Crescent-shaped section forms upper half of outer surface. Bottom casting is vibrated to consolidate concrete underneath.



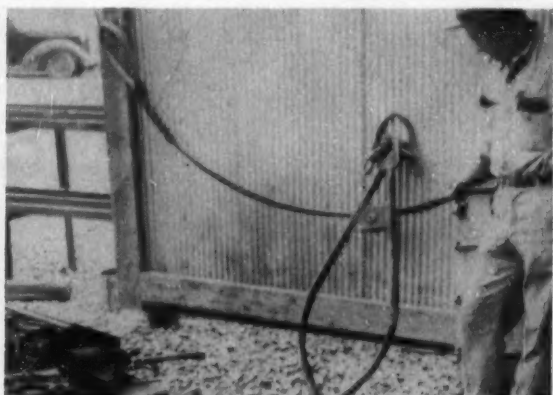
**CAREFUL BLOCKING** with timbers to supplement hydraulic jacks is one of safety measures practiced by Kiewit-Condon-Cunningham's master mechanic Whitey Ramey, here shown inspecting a down D8.



**MAINTENANCE MANUALS** are kept on file in job repair shop. Behind Whitey is a bank of filing cabinets he has converted to small parts storage, above him is suspended balcony for filter storage.



**SAFETY SIGNS** and maintenance tips adorn shop walls, and are even placed on tool storage board to make sure that men will see them. Shaler tube repair tools and instructions are at left.



**STEEL TONGS** for damage-free handling of 2,700-lb tires for DW 21s was made on job. Hung from each shop door, and painted red, is emergency cable for towing machines out in case of a fire.



**YARD CRANE** is Huber 10-ton roller fitted with pipe boom and Yale 1-ton block. Roller will later go into more normal service.

## Is Your Job This Good?

### Turnpike Contractor Shows Maintenance Tricks

ONE OF THE HIGH SPOTS, maintenance-wise, on the Ohio Turnpike is an 8-mi section near Fremont. Outwardly it's just a routine \$6,300,000 job that includes moving 2,100,000 yd of dirt with shovels, wagons, and scrapers on an average 2,000-ft haul. But joint-venture contractors, Peter Kiewit Sons' Co. and Condon-Cunningham Co., both with home offices in Omaha, are doing a far-from-routine job in equipment maintenance.

What makes their maintenance outstanding? Just a series of simple operations, gadgets and precau-

tions that are the result of common sense and thorough advance planning. They range all the way from a safety sign that is hung on units being serviced, to a device that practically eliminates scraper cable breakage.

Spark plug of the maintenance operations, under general superintendent I. J. Garver, is master mechanic Burt (Whitey) Ramey. His 26-man staff takes care of all servicing and repairs to a \$2,000,000 fleet of heavy earthmoving equipment that numbers better than 50 units. An accompanying table





**LUBRICATION TRUCK** is completely equipped, even to lube foreman Harold Rister's safety sign for hanging on unit being serviced. Grayco lube pumps and reels, Witte diesel generator, Quincy compressor and hand tools make up Chevrolet unit's other equipment.



**BUSHING PULLER** is job-made device used in conjunction with standard gear puller to remove bushings from tractor front idlers.



**TOWING CABLE** is carried by all graders (and tractors) to assist any earthmovers that may get stuck, so as not to cause damage by pushing without push plates or push blocks. Four-way flashing warning lights are mounted high on frame at rear to prevent collisions.



**SMART ALEC** fitted to DW21 scrapers prevents heavy-handed operators from causing cable breakage. It regulates ejector action.

shows the crew break-down. But let's take a walk around the job to see the maintenance force at work and find out how they do it.

Whitey's office is in a stockroom shed attached to the job's 20x40-ft repair shop, which is a metal-sided wood frame structure with two equipment stalls. Comparatively few supplies and spare parts need to be carried on this project, because near-by equipment distributors give excellent service. Only day-to-day needs are stocked, but these are replenished immediately after use.

The shop is fitted with a rolling pipe-frame gantry that carries a chain hoist for making heavy lifts. A movable bench is conveniently placed between the two equipment stalls to carry tools. In one corner, a bank of standard file drawers for 3x5-in. index cards has been converted into a handy cabinet for bolts and small parts. Another

cabinet holds a complete file of maintenance manuals for each type of equipment on the job.

Special or infrequently used tools hang from a board on the wall, and alongside are posted photographic charts showing just how certain maintenance and repair operations should be performed. Near by are some job-made tools, including a press for use with a standard sprocket puller and a set of tongs for handling big earthmover tires. Safety is pointed up by strategically placed fire extinguishers and by covered metal containers for oily rags.

Outside the shop, supplies are stacked neatly on wooden duck-board platforms to keep them off the ground. Large reels of heavy wire rope are all mounted on spindles for easy unspooling, while smaller reels of cable for scrapers are stored on steel racks.

Set away from the shop and

#### Maintenance Crew

	Day Shift	Night Shift
Master Mechanic	1	—
Foreman	2	2
Parts Man	1	1
Mechanic	4	4
Welder	1	1
On Lube Truck	3	2
On Grease Rack	1	—
Laborer	2	2
	15	12

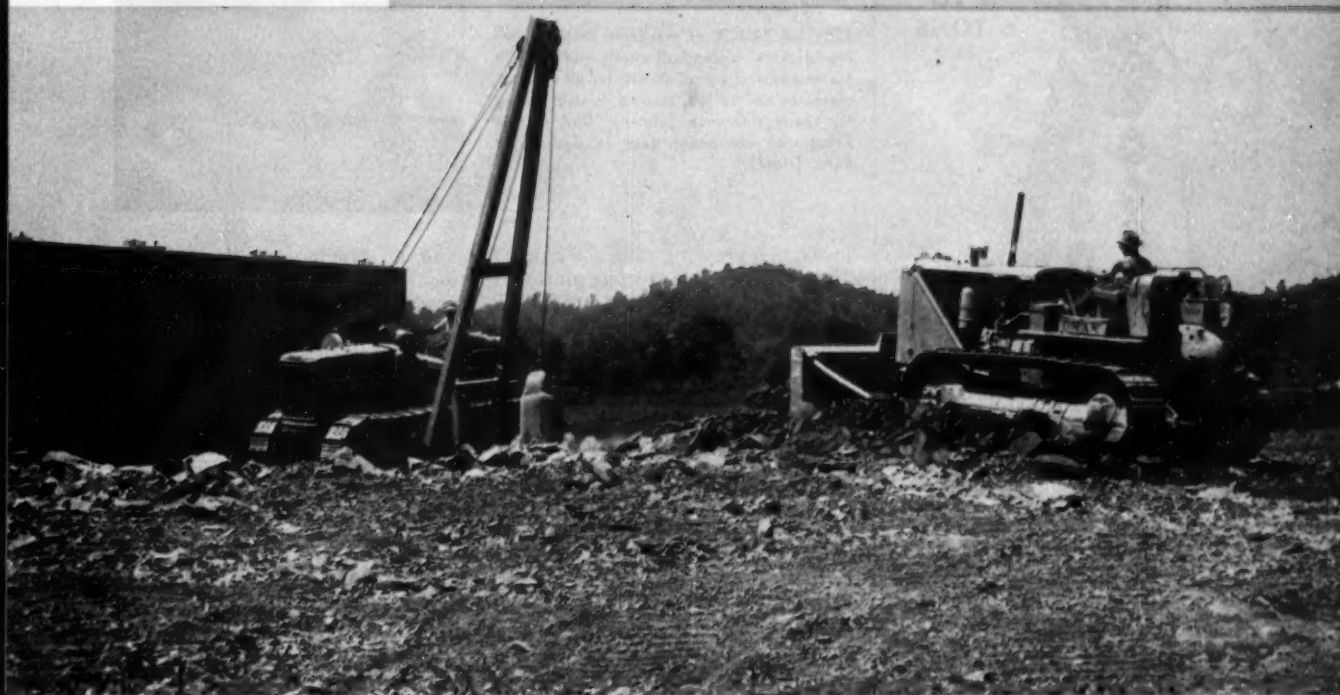
buried for safety is a 1,000-gal gasoline storage tank. Only fuel kept above ground is a 300-gal emergency tank of diesel oil. Gulf Oil Co. tankers go right into the field to refuel all the rigs.

A short distance from the shop is an elevated timber platform. One part, to which an earth ramp

(Continued on page 66)

On the  
West Virginia  
Turnpike

## a D7 with sideboom cuts rocks down to size!



For a tough job on the West Virginia Turnpike, Oman Construction Co., Nashville, Tenn., used a strong-armed Caterpillar team.

The job was to push up a 20-foot-high fill for an underpass. Rock was brought in at the rate of 275 loads a day. But specifications were rigid on the size of rock to be used in the fill.

So Oman put a 5000-pound weight on the sideboom of a pipe layer-equipped CAT\* D7 Tractor to break rocks to required size. This is an example of the versatility of these units which can lift many tons with ease. Cat Pipe Layers are essentially mobile cranes which can get in and out of rough ground conditions while carrying loads. There are five models available with lifting capacities up to 83,600 pounds.

In addition to the D7 working with the sideboom unit, Oman had on the job seven DW21s, more than twenty D8s and three No. 12 Motor Graders.

Everywhere along the rugged, mountainous terrain of the 88-mile West Virginia Turnpike contractors had similar Caterpillar-built fleets.

Job-wise contractors know it makes sense to standardize

on Cat equipment. Not only do you have equipment that can handle a variety of jobs without costly down time, but operators and mechanics become familiar with one make. And, of course, you have the advantage of one-stop service from one dealer.

He's the man to see when you have important work coming up. He has field-proven equipment to fit any job. And he'll be happy to prove it—on your job.

Caterpillar Tractor Co., Peoria, Ill., U.S.A.



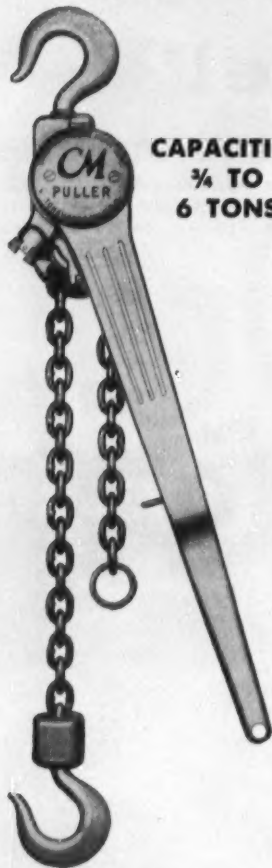
# CATERPILLAR\*

\*Both Cat and Caterpillar are registered trademarks—®

**NAME THE DATE...  
YOUR DEALER  
WILL DEMONSTRATE**

# CM PULLER

LIFTS OR PULLS  
FROM ANY ANGLE



CAPACITIES  
¾ TO  
6 TONS

LOW IN COST...  
HIGH IN USEFULNESS

● Use it vertically, horizontally, at any angle or even upside down. Truly the tool of 1001 uses. Light weight aluminum alloy construction. ¾ ton capacity weighs only 13 lbs. Carries in one hand. Fast ratchet handle operation. Automatic brake holds load at any point. Sealed in lifetime lubrication. HERC-ALLOY flexible welded steel load chain.

SEND for Bulletin 146, prices and name of your local distributor.



**CHISHOLM-MOORE HOIST DIVISION**

COLUMBUS McKINNON CHAIN CORPORATION

TONAWANDA, NEW YORK

DISTRICT OFFICES: NEW YORK, CHICAGO, CLEVELAND  
In Canada: McKinnon Columbus Chain Limited, St. Catharines, Ont.



SERVICE TRUCK of mechanic Bernie Fleming has Kiewit's standard weekly and monthly maintenance check-off sheets, for all types of machines on the job, stapled to cab ceiling for ready reference (above). Unit is also fitted with clip-board desk on dash, road flares (right).



leads, is a greasing rack for trucks. The other end is a storage platform for Texaco lubricants, and is at truck-bed height for easily loading the drums into a field greasing truck.

The grease truck, a Chevrolet 600, is fitted with Grayco lubricating equipment that is oriented for side delivery. This placement results in easier and quicker lubrication. The truck carries a divided tank with 100 gal of gasoline and 125 gal of diesel oil for emergency refueling. Also mounted in the truck bed are a Quincy compressor, and a 4-hp Witte diesel engine driving a 2.3-kw generator. One of the most important items carried is a sign—"Danger, Do Not Start." This safety device is hung on the starting motor or steering wheel of the machine being serviced.

A similar sign is carried and used by the mechanic on the field service truck. A Chevrolet 6400 flat bed, this unit mounts a rear A-frame powered by 2-ton hand winch, tool box, oxygen and acetylene cutting equipment and a vise. For safety, the trucks are fitted with road flares and with flashing red warning lights. They also carry a carbon dioxide fire extinguisher, as does the lube truck.

Kiewit - Condon - Cunningham recognizes that safety is a vital part of equipment maintenance, as demonstrated by the safety signs, the fire extinguishers, and flashers. Even the graders that maintain haul roads and help spread fill are equipped with the latter. They also carry a 10-ft length of 5/8-in. cable

(and all tractors carry 1½-in. x 10-ft cables, pickups carry 10-ft chains) to pull struck machines out of soft spots. That's because there's a strict job rule against pushing any units unless they are equipped with push blocks and push plates, to prevent damage.

Also to prevent damage, Caterpillar DW21 scrapers are fitted with an automatic ejector stop that reduces cable breakage by 75%. Dubbed the "Smart Alec" and made by R. B. Vance, Nashville, the device consists of a switch that is tripped by the ejector plate just before it reaches the end of its forward travel. The switch actuates an air cylinder that pulls the ejector control lever from the operator's hand to prevent any snapping of cables because of overload.

## For Crane Safety

YOU CAN HELP prevent accidents caused by crane booms coming in contact with energized electric lines by taking advantage of three new aids issued by the National Safety Council, Chicago.

One is a folder that explains why and how to keep booms in the clear, and what to do in emergencies. Second is a reminder sticker for the interiors of crane cabs. Pressure sensitive, the oversize sticker can be applied to any smooth surface in seconds. Third item is a grim warning poster to alert workers before they start work.



here's

# PROOF

## GRIFFIN WELLPOINT YIELDS MOST WATER

ESTABLISHED 1890



United States Testing Company, Inc.

HOBOKEN, N. J.  
TELEPHONE: HOBOKEN 3-3166

REPORT

NUMBER

E-9687

(Refer to this number)

June 8, 1954

Client: Griffin Wellpoint Corp.  
881 East 141st Street  
New York 54, New York

Subject: Comparative Flow Efficiency Test on five brands of Wellpoints

Following is a summary of the test we conducted comparing the performance efficiency of wellpoints manufactured by Griffin Wellpoint Corporation, with those of four competitive brands.

Our procedure was to pump water from a reservoir through each wellpoint into a calibrated tank. The rate of flow through the wellpoint determined the relative efficiency. Samples were furnished and identified by the client.

The results are tabulated below:

	Vacuum in.	Pump Speed RPM	Time Sec.	Volume Gallons 100	Gallons Per Min. 90.1
Griffin	25	1625	66.6	100	82.6
Wellpoint A	25	1663	72.5	100	82.6
Wellpoint B	25	1650	72.5	100	46.5
Wellpoint C	28	1700	129.0	100	40.5
Wellpoint D	28	1706	148.1	100	

From these results it may be concluded that the Griffin Wellpoint yields more water than the other brands tested.

All 5 leading makes of self-jetting wellpoints included in this test. Full Report available for inspection, on request.

Page 1 of 1

Supervised by

*Alan E. Surosky*  
Alan E. Surosky  
Manager, Engr. Div.

United States Testing Company, Inc.  
by *John Mooney*  
John Mooney

OUR LETTERS AND REPORTS ARE FOR THE EXCLUSIVE USE OF THE CLIENT TO WHOM THEY ARE ADDRESSED, AND THEIR COMMUNICATION TO ANY OTHERS, OR THE USE OF THE NAME OF UNITED STATES TESTING COMPANY, INC., MUST RECEIVE OUR PRIOR WRITTEN APPROVAL. OUR LETTERS AND REPORTS APPLY ONLY TO THE SAMPLE TESTED AND ARE NOT NECESSARILY INDICATIVE OF THE QUALITIES OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS.

C 11481-8-25-54

## GRIFFIN WELLPOINT CORP.

Dewatering and Soil Stabilization

881 East 141st Street, New York 54, N. Y. • Jacksonville, Fla. • Hammond, Ind. • Houston, Tex.

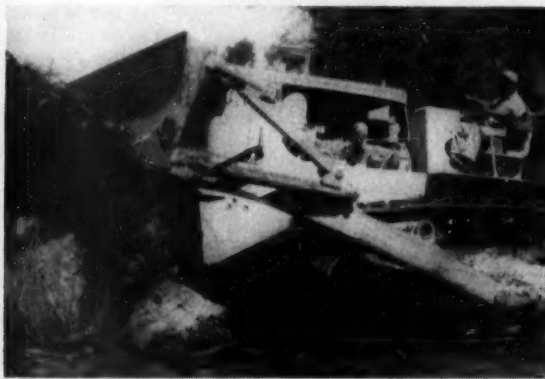


ONE OF THE MACHINES is working on the Ohio Turnpike. With a D8, it is helping to load a Caterpillar DW20 and scraper owned

by Milwaukee contractor, Frank Mashuda Co. The tractor operator was enthusiastic over the performance. It has 6 speeds.



THIS WILL GIVE YOU a fair idea just how big this D9X is. The baby of the Cat family, the D2, gives its big brother an assist by dozing the push arm into place for attaching to the D9X.



ACCORDING TO THE OPERATOR, the D9X is the best land-clearing machine he's ever used. A giant bulldozer blade backed by more than 200 hp and 72,000 lb makes a good unit for this operation.



←  
ALLIED MANUFACTURERS are participating in the field tests, too. This one being used in logging operations, has a Hyster winch and logging sully.

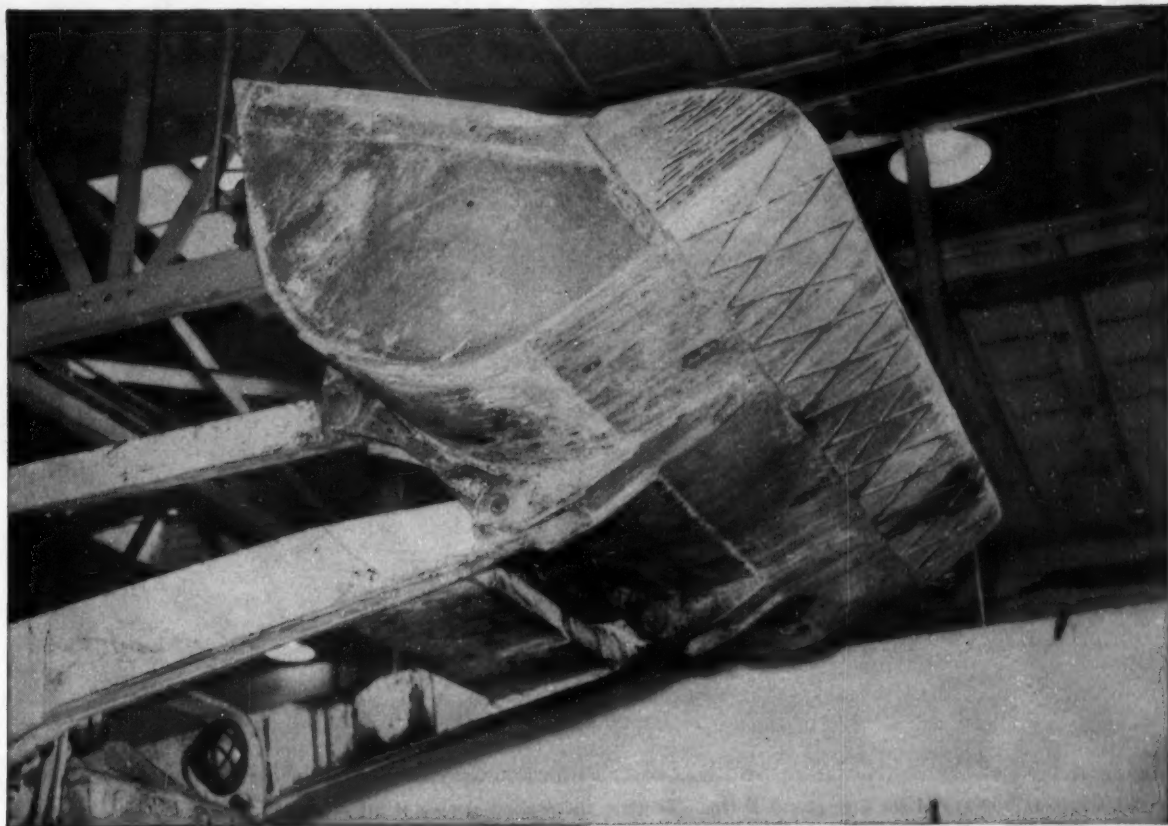
→  
CONTROL ISLAND on the new D9X is a feature. Note hanging pedals and locations of controls.



## Field Shots Show the Big D9X in Action

THESE EXCLUSIVE PHOTOS show Caterpillar's entry in the behemoth tractor field; the experimental but not-yet-in-production D9X, said to be under development for 5 years. Cat has placed 10 D9s in the field on an experimental basis. It's reported no two machines are exactly alike, and

Cat is releasing no official comments regarding performance. The machines are said to be in the 200-250-hp class, weigh around 72,000 lb, are 17 ft 5 1/4 in. long, 9 ft 11 1/4 in. wide, and 9 ft 4 in. high. Observation in the field shows plenty of power and an exceptional high-speed reverse.



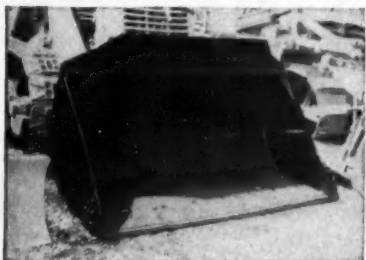
*Hard-faced with Stooddy 21 along the lip and side plates, this scoop holds size and load capacity. A self-sharpening lip makes it easy to load.*

## PROTECT THE LIP AND SAVE THE SCOOP

### — A simple Stooddy hard-facing procedure for loaders

Protecting scoop loaders from wear is a relatively simple hard-facing job. Results are generally two-fold; 1) The bucket holds original size, thus retaining full capacity and 2) lips become self-sharpening, insuring easier loading.

**MANY TYPES**—Although many scoop loaders are manufactured today, hard-facing procedures are similar on all. Wear usually concentrates along the bucket lip and extends up both inner and outer sides of the end



*End plates are protected inside and out with a series of parallel stringers or cross-hatched beads of Stooddy 21.*

plates. (Caution: Hardened steel lips as furnished by some manufacturers are not suitable for welding until surface hardening has been worn through.)

**HARD-FACING DETAILS**—A single  $\frac{3}{4}$ " wide band of Stooddy 21, along the top edge of the lip, accomplishes two purposes:

It provides maximum wear protection for intense scuffing and abrasion against earth, paving materials, etc.

It makes the scoop self-sharpening by keeping the top surface from wearing as rapidly as the base metal.

End plates are hard-faced by a series of parallel or cross-hatched stringers, both inside and outside and along the leading edge.

Replace severely worn lips with steel plate cut to size and hard-face as described above.

Stooddy 21 is suggested for protecting scoop loaders because of its high abrasion resistance and impact

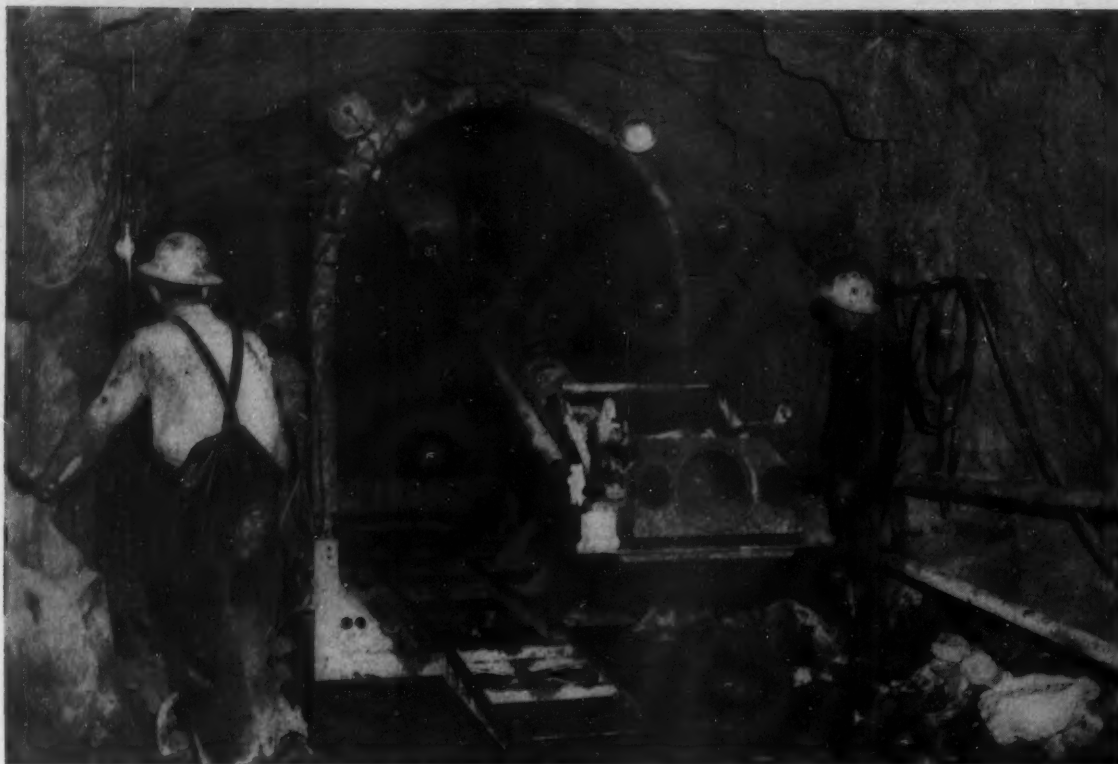
strength. These two features are a direct result of high alloy content—yet Stooddy 21 is a low cost electrode. This and other equipment-saving applications are described in the Stooddy Guidebook. Ask your Stooddy dealer for a copy (consult the "Yellow Pages" of your phone book) or write direct.



*The scalloped edge on this scoop is a variation that has been found to give excellent results under some conditions. Note the hard-facing material along the edge.*







RAISING AND LOWERING of discharge pipe at underpass switch, unobstructed passage of flat and muck cars either for concrete or permits switching of placers during concreting operation and the invert clean-up operations.

THE OPERATION OF REMOVING track and loose muck from the invert of a tunnel, preparatory to placing of the lining is usually a tedious and expensive operation.

The Shea Company of Los Angeles, who recently completed construction of the 7,540-ft Cajalco tunnel for the Metropolitan Water District of Southern California, consulted with officials of the Flocrete Manufacturing Co., of Los Angeles and worked out an efficient and economical clean-up method.

By making use of the Flocrete method of tunnel lining (CM&E, Feb. 1954, p. 86) it was not necessary to remove the concreting equipment from the tunnel or to a siding in order to provide unrestricted passage for haulage equipment to and from the clean-up area.

The method used in the Shea Company's clean-up operation is shown in an accompanying diagram.

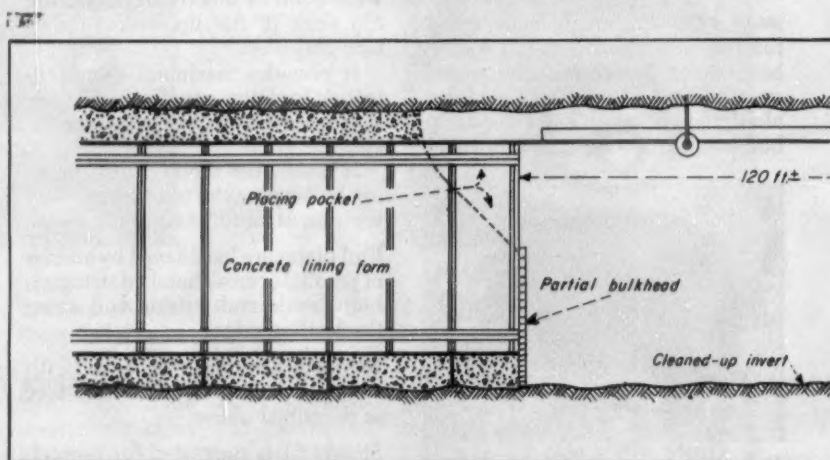
The concreting equipment consisted of an underpass switch and six pneumatic concrete placers. The underpass switch is a mobile track-mounted fabricated steel framework with a section of elevated

## Shea Removes Track and Cleans

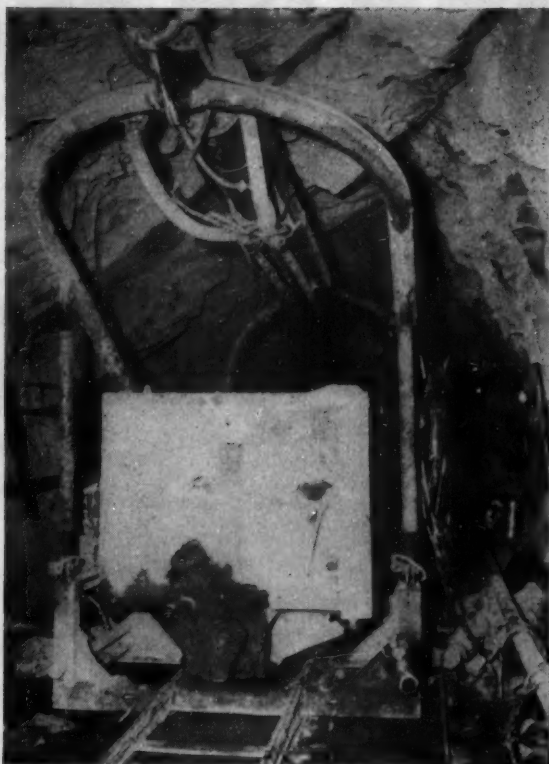
track made accessible by rail ramps at either end of the underpass and a means of pneumatically raising the discharge pipe, which permits the switching of the placers during the concreting operation and the

unobstructed passage of flat and muck cars and locomotives during either the concreting or invert clean-up operations.

As illustrated in the diagram, rail and ties were taken up and re-



CROSS-SECTION of Cajalco tunnel operation shows how the loose muck from the invert of the tunnel was loaded out by a Caterpillar D4 tractor front-end loader



THIS MUCK CAR is passing through the underpass on to the rail ramp. Car will be loaded by tractor and returned.



EMPTY PLACER stored at far end rail ramp. Discharge pipe is about to be lowered to connect to next placer.

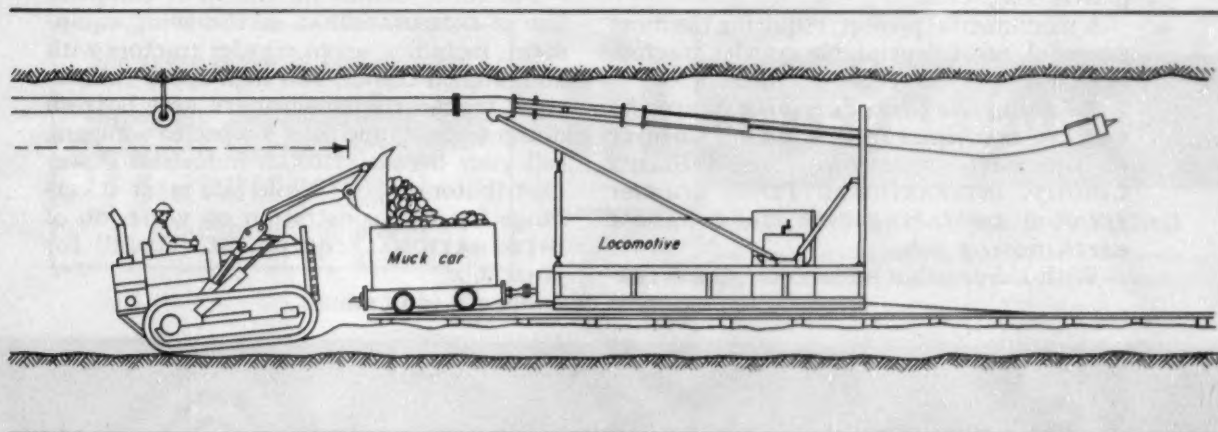
## Out Tunnel Invert at Lower Cost

moved on flat cars during the concreting operation. A Caterpillar D4 diesel tractor, equipped with an exhaust scrubber and hydraulically operated front-end loader with a special heavy-duty bucket, loaded

the invert material into a muck car which was hauled through the underpass switch to the dump area. Another interesting development on this project was the use of a placing pocket with which to ter-

minate each day's concreting operation. The placing pocket was formed by terminating the concreting operation as the bottom of the advancing slope of concrete reached approximately the top of the partial bulkhead, erected to the spring line of the circular tunnel section.

The advantages of the placing (Continued on page 74)



equipped with exhaust scrubber. The material was loaded into muck car and hauled

through underpass switch (where locomotive is shown parked) to dump area. Shown also

is the placing pocket method which proved highly satisfactory on this project.

# Opening up the



**HEAP LOADS IN A HURRY.** One of Julian Construction Company's seven TD-24s push-loads a new INTERNATIONAL 2T-75

near Wauseon, Ohio. Julian has 1,000,000 cubic yards of dirt to move in sub-grading 7.2 miles of the Ohio Turnpike.

## **INTERNATIONAL TD-24 crawler tractors, preferred by contractors on toughest phases of Ohio Turnpike construction**

An estimated 29,506,100 cubic yards of earth and rock is being excavated and an estimated 46,905,000 cubic yards of borrow and fill will be moved before the 241.1-mile Ohio Turnpike is completed.

A monumental project, requiring the most powerful, most dependable crawler tractors available.

*All along the Ohio Turnpike, from the eastern terminus in Mahoning County to the western terminus in Williams County, INTERNATIONAL TD-24 crawler tractors are taking over the toughest earthmoving jobs.*

With 155 drawbar horsepower, the INTER-

NATIONAL TD-24 can conquer any big job. And the durability of every TD-24 means less maintenance, downtime, and operating expense, more profit for the owner.

For more details on the new, complete line of INTERNATIONAL earthmoving equipment, including seven crawler tractors with 26 matched blades, two high-speed rubber-tired tractors with scrapers and bottom dump wagons, and four 4-wheeled scrapers, call your INTERNATIONAL Industrial Power Distributor today. While you're at it, arrange for a demonstration on *your* job of INTERNATIONAL equipment "sized" for *your* job.

**INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS**





# Ohio Turnpike



**SMOOTHING A BRIDGE APPROACH.** Largest structures on the Ohio Turnpike are twin bridges north of Akron. Over 1,500,000 cubic yards will be moved by Wilco Builders, subcontractors, Brecksville, Ohio, with two TD-24s leading the way.



**DOES MORE THAN ITS SHARE FOR CENCI.** Subcontractor Nick Cenci and Sons, Inc., Columbus, Ohio, use an INTERNATIONAL TD-24 for the heaviest heaped-loading work. TD-24 recently push-loaded 450,000 yards of earth with no downtime.



**LOADS THEM OUT FOR LAUNDER AND PIERCE.** An INTERNATIONAL TD-24 hauls a loader on a 28 to 36-inch cut. Contract for this section is held jointly by Launder and Son, Inc., and The Pierce Construction Company, Toledo, Ohio.



**SPEEDS SOIL-STRIPPING FOR SMALLEY.** Approximately 3,600,000 cubic yards of earth will be moved by D. R. Smalley and Sons, Celina, Ohio. One of their three TD-24s is used to pull a loader on soil-stripping work near Milan, Ohio.

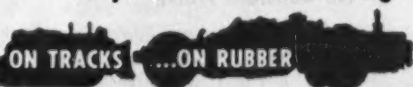


**HANDLES THE TOUGH ONES FOR HERKNER.** Extensive drainage is required through Summit and Cuyahoga Counties. Herkner Construction Company, Cleveland, uses the TD-24 shown here to handle excavation and drainage pipe placement.



**LOADING IN MAHONING COUNTY.** Two of D. W. Winkelman's five TD-24s complete fast cycles in spite of soggy going south of Youngstown. Roughly three-and-a-quarter million cubic yards will be moved on this contract.

For every move in Earthmoving



See INTERNATIONAL  
"Job-Phased" equipment



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**INTERNATIONAL®**

**MAKES EVERY LOAD A PAYLOAD**

\*Phased Equipment—Machines designed and built to handle each major phase of earthmoving most efficiently and economically.



SEVEN GREAT INTERNATIONAL CRAWLERS... EACH WITH  
MATCHED EQUIPMENT FOR EVERY JOB

## Cut Concrete Placing Costs with BLAW-KNOX CONCRETE BUCKETS

There's a size and type of Blaw-Knox Concrete Bucket to speed your work and help you cut costs.

Roller Gate Controllable Discharge Buckets for normal or low slump concrete for general construction work; CAC Buckets with air-operated clam gates for low slump mass concrete specifications; Type C Manual Clam Gate Buckets for normal slump concrete.

See your nearest Blaw-Knox distributor for details.

Photo—courtesy  
F. H. McGraw & Co.

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If you want peak performance on every dewatering job depend on CARVER!

CARVER manufactures the complete line of self-priming pumps from 4000 G.P.H. to 250,000 G.P.H. Every one of these pumps has the same simple design, sturdy construction and rugged durability that mean outstanding performance where jobs are really tough.

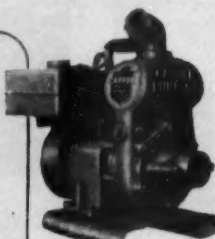
Your CARVER DISTRIBUTOR can also supply you with Diaphragm Pumps and a full line of high pressure Jetting Pumps. See him today.

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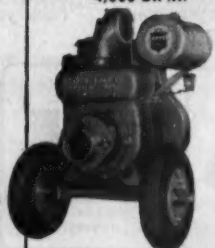


**CARVER**

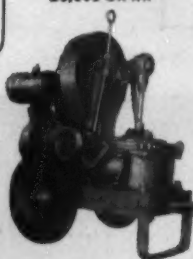
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4,000 G.P.H.



3" SELF-PRIMING  
20,000 G.P.H.



4" DIAPHRAGM PUMP  
6,000 G.P.H.

## CAJALCO TUNNEL

Continued from page 71

pocket were that it produced a well bonded construction joint between the successive sections of the lining, assured the complete packing of the arch, and increased the daily progress of the lining operation.

At the beginning of each day's concreting operation, the underpass switch was so located that the end of the slick line projected on to the placing pocket. At the beginning of a pour, mortar was discharged on to the construction joint to provide a bond between the successive sections of the lining. It was found that the mortar was more thoroughly applied to the contact surface of the sloping joint and to the vertical surface between the toe of the slope and the invert than could be obtained on the vertical joint produced by the use of a full bulkhead.

The sloping joint provided a chute down which the concrete would flow to the invert with a minimum of segregation as opposed to the segregation which normally occurs in the lining below the spring line when the concrete is discharged against a vertical joint and rolls over the top half of the forms and falls in a sheet to the invert.

The use of a placing pocket assured the complete packing of the arch because the concrete was continuously placed at its most effective rate. During the "topping-off" operation, when placing concrete in the arch near a full bulkhead, the arch cannot be adequately packed because the pressure must be reduced to prevent the displacing of the bulkhead and the creating of a void in the arch as the slick line is withdrawn.

## No Concrete Waste

From an economical viewpoint, the placing pocket was found to have several definite advantages over the use of a full bulkhead. When completing the pour to a slope, it was not necessary to estimate the exact amount of concrete required because the slope did not have to be terminated at any definite position. Thus, the shifter was able to determine, in advance, the required amount of concrete required to complete the pour. When this information had been phoned to the batch plant operator, he mixed the required concrete and could immediately begin the out-

side clean-up operations. There was no waste of concrete.

As concreting progressed, the slick line was withdrawn at a rate which provided for the filling of the voids between the surface of the tunnel and the forms and insured the complete packing of the arch. The rate of withdrawing the slick line was determined by a man who, observing the placing operation through the doors in the top and sides of the form, operated a push-button switch that actuated a "squawker" and a light which were mounted on the underpass switch where they could be seen and heard both by the placer and the locomotive operators. Because of rigid connections between the locomotive, placers, underpass switch, and the discharge line, the slick line was moved in either direction and for the required distance by the corresponding movement of the locomotive.

Each day the Shea Company was able to clean up more than 100 ft of invert, involving the removal of 70 cu yd of invert muck, set 100 ft of concrete forms and place between 300 and 320 cu yd of concrete.

#### Project Personnel

The Metropolitan Water District's program is under the direction of Robert B. Diemer, General Manager and Chief Engineer. Construction is under the supervision of H. J. Mills, the District's Construction Engineer, and W. F. McCleary, Aqueduct Maintenance Engineer. Tom Cain and Jack A'Kena were the engineers in charge of the tunnel lining operations.

W. F. Rennebohm was the project manager for The Shea Co. He was assisted by H. Ewart, general superintendent; Whity Martin, night superintendent; Jack Maddox, office manager; H. Allinder and Frank Clary, shifters; Ed Schakow, master mechanic and A. M. Brown, chief electrician.

#### A Short, Short Story . . .

Count that day as lost  
Whose low descending sun  
Sees profit shot to hell  
And business done for fun.

(Framed on the wall of Chastain Contractors office, Decatur, Ill.)

## MICHIGAN TRACTOR SHOVEL

has the

**Extra Power**  
for bigger loads  
...more yardage  
...faster



Waukesha 195-DLC Diesel Engine



## WAUKESHA POWER



... loading compacted sand and gravel ... or spotting railroad gondolas—at Custer, Wis., plant of the F. F. Mengel Co. of Wisconsin Rapids, Wis.

This 125-A Michigan 1½ cu. yd. tractor shovel has the extra power when it's needed. Because of the 195-DLC Waukesha Diesel Engine, 6-cyl., 4" bore x 4" stroke, 302 cu. in. displ.—engineered-and-built into the tractor shovel's Clark Power Train by the Clark Equipment Company, Construction Machinery Division, Benton Harbor, Mich. Get Waukesha Engine Bulletin 1624.

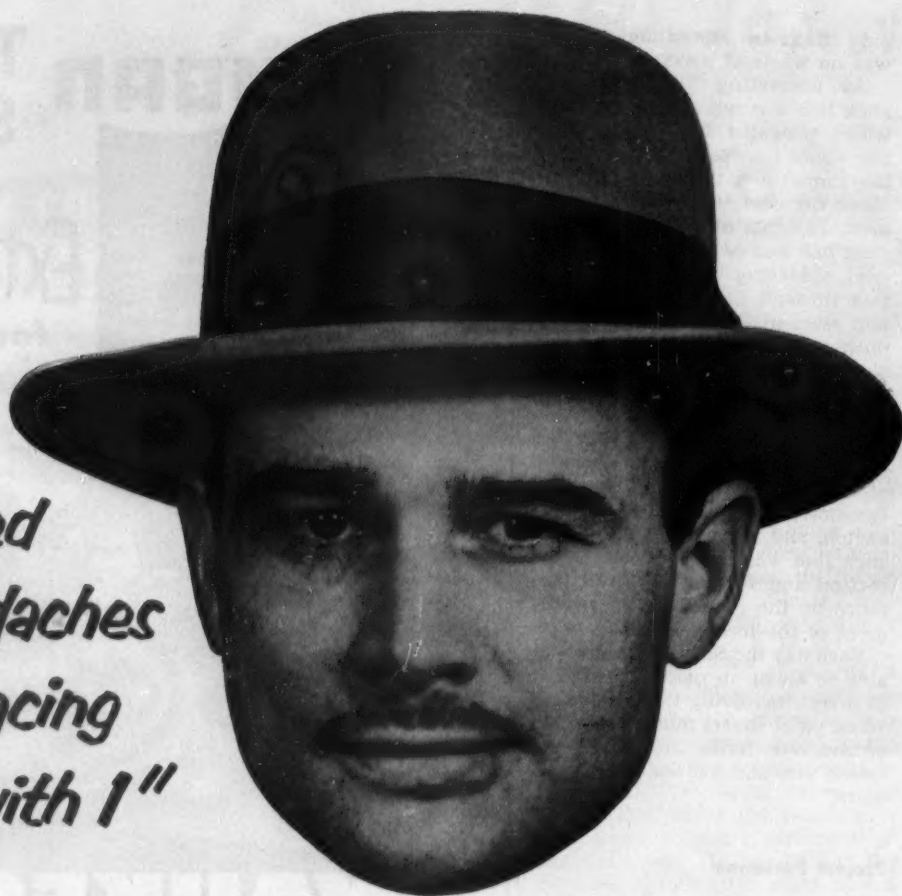
254



WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN  
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*"We cured  
60 headaches  
by replacing  
3 oils with 1"*



For three years, a large midwestern road builder had engine troubles by the truckload. Sludge formed in the crankcases of *more than 60* trucks, bull dozers, scrapers and heavy roadbuilding machinery working under every condition from idling to moving tons of earth. Rings stuck. Valves were coated with heavy deposits. Oil had to be drained in 60 hours or less.

Sinclair Lubrication Engineer Carl Schmidt reports: "Oil breakdown was a big factor, even though the company was using three different oils. I suggested Sinclair TENOL®, pointing out that its superior qualities would offer maximum protection to heavy working engines, and at the same time prevent sludge formation during light duty operations. A test was conducted on 20 units using TENOL."

Engineer Schmidt continues: "The results have been excellent. Drain periods have been extended to 130 hours, with a big saving in oil. Engines are cleaner, with no valve chamber deposit. Stuck rings are a thing of the past. In addition to the direct gallon consumption savings, the use of *one* oil in place of *three* means more economical inventory control. TENOL proved so superior that after 30 days, all units were switched to this heavy duty oil."

## **SINCLAIR LUBRICANTS**

Why not give a Sinclair Lubrication Engineer the chance to help solve your lubrication problems. There's no obligation. Contact your local Sinclair office or write Sinclair Refining Company, 600 Fifth Avenue, New York 20, N. Y.

**You've never before seen Compaction like this!**



## Announcing the new and revolutionary **Buffalo-Springfield Kompactor**

What do we mean by "new"? There's *never* been anything like it before!

Why do we say "revolutionary"? Because the Kompactor is changing *drastically* the time and cost elements in soil compaction jobs!

Here are the spectacular results of tests in the field:

*The Kompactor has met density requirements in one fourth the number of passes required with large sheepsfoot, vibrating, or heavy pneumatic-tired rollers. One contractor reports a cost savings of 50% on an embankment job!*

The Kompactor is self-propelled, reversible, and easy to maneuver on steep embankments, can work in close to abutments, culverts, etc.

There's a Buffalo-Springfield Distributor conveniently located to serve you.



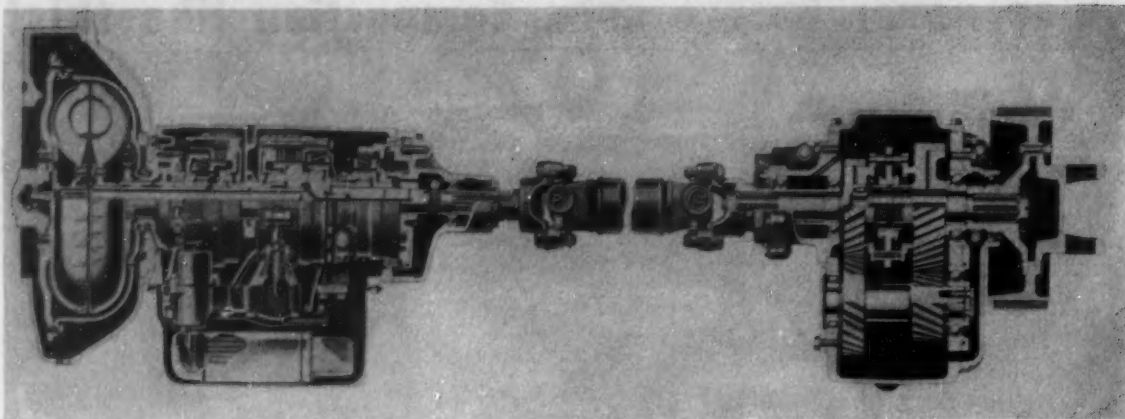
The unique rolls of the Kompactor are *segmented*. The staggered "islands" that form the rolling surface enter loose material with minimum displacement, either forward or horizontally. They leave without disturbing compacted areas in any way. All compaction effort is *downward*, resulting in greater and more uniform density from lower elevations to top surface. As a result, *two passes with the Kompactor will often meet density requirements!*

Before you bid another soil compaction job, find out more about the Buffalo-Springfield Kompactor. It may completely change your time and cost picture, give you a clear-cut advantage in bidding those close jobs!

Write today for full information.

The Buffalo-Springfield Roller Co.  
Springfield, Ohio





EIGHT-SPEED HYDRA-MATIC DRIVE UNIT in GMC trucks of gross weights between 26,000 and 45,000 lb consists of a fluid coupling to the engine (left), four-speed hydraulically controlled planetary gear-type transmission and two-speed reducer.

## GMC Hydra-Matic Transmission...



HEAVY OVER-THE-ROAD HAULING brings out all the best performance characteristics throughout the wide power and speed ranges possible with the big-truck Hydra-Matic. Trips are easier on driver and truck, are made quicker and with greater safety.

## ...Improves a Heavy-Duty Line

**AUTOMATIC TRANSMISSIONS** by the millions are used in passenger cars—and some light trucks. Now at long last there is a heavy-duty unit to handle the big trucking jobs, a Hydra-Matic in GMC trucks.

Officials of the GMC Truck &

Coach Division of General Motors Corp. see a paradox in that such a useful feature for trucks was developed first for automobiles. They point to over-all economy through greater efficiency of engine, drive mechanism and driver—coupled with far less downtime and the ab-

sence of the usual clutch, transmission, drive line, rear axle, and brake repair costs.

GMC engineers decided between a torque converter type transmission and the hydraulically controlled planetary gear type only after exhaustive tests. The plane-



tary gear type proved more practical for trucks chiefly because the engine and drive wheels always are linked together through a positive drive gear system, allowing the engine to be used as a brake on down grades. Also, since there is no power loss through slippage and the most efficient speed ranges are selected automatically all the time, they claim better truck performance and fuel mileage than with the mechanical transmission.

A fluid coupling replaces the conventional clutch, one of the biggest maintenance items in many truck operations.

#### Big-Truck Hydra-Matic

The most popular of GMC's new transmissions in the construction trades have been the so-called eight-speed Hydra-Matics. They are four-speed Hydra-Matic units coupled with a two-speed reduction unit which are used in GMC trucks with gross combination weights ranging from 26,000 to 45,000 lb. Lighter units are available for smaller trucks in the line, right down to the pickups, where they have been well received.

The big-truck Hydra-Matic takes engine torque through a fluid coupling that eliminates slippage above 700 rpm, even under full load. The two-speed reduction unit (connected to the transmission output shaft with a short propeller shaft) is a rugged synchro-mesh gear box providing 2.59:1 reduction in low range and direct drive in high range.

Coupled with the four relatively close gear steps in the Hydra-Matic units—3.82, 2.63, 1.45 and direct—the entire unit provides progressive shifting as follows:

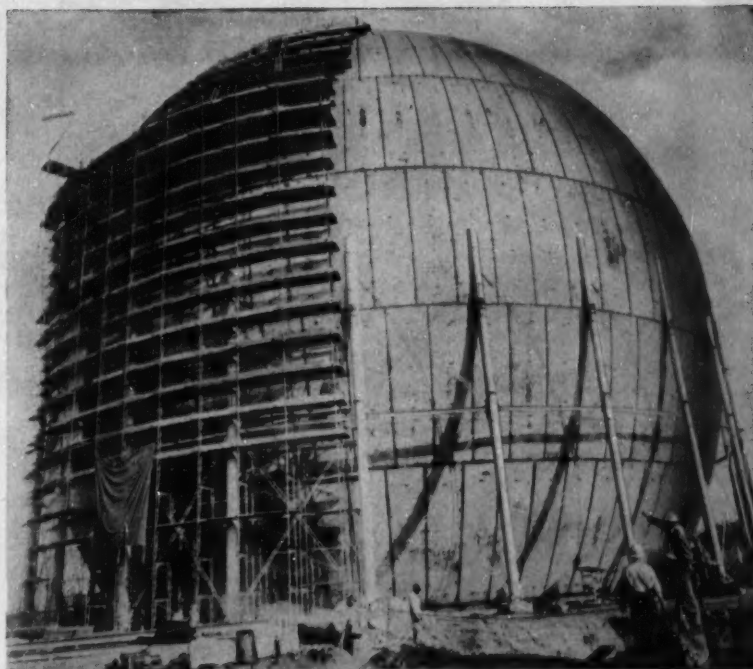
**Low gear range** (1) 9.89:1; (2) 6.81:1; (3) 3.75:1; (4) 2.59:1.

**High gear range** (1) 3.82:1; (2) 2.63:1; (3) 1.45:1; (4) 1.00:1.

This makes an operating total of 6 or 7 forward speeds, because there will be some variation in the Hydra-Matic gear used after the reduction unit is shifted, depending on road speed, throttle opening and shifting lag. Notice that third and fourth gear ratios in low range are practically the same as first and second in high range, allowing the driver some leeway in case he is maneuvering in traffic.

- All automatic shifts are made in the maximum torque (best efficiency) range of the engine under full throttle. Shift points are proper.

(Continued on page 82)



World's Largest Ball Simulates Sea-Going Conditions

## 18-Story Steel Ball Built for Atomic Sub Tests

### SAFWAY SCAFFOLD FITS UNUSUAL FORM

**EVEN A SPHERE** does not present any particular problems for Safway Steel Scaffolding!

With the aid of Safway equipment, the world's largest ball has been erected at West Milton (Schenectady), N. Y. This huge spherical structure has walls of one-inch thick steel plate. It will be used to simulate sea-going conditions for testing components of atomic-powered submarines.

Standard Safway parts were assembled into a 3-dimensional scaffold that hugs contours of the monster ball and supports a series of arc-shaped platforms reaching over halfway to the top. Also, one of Safway's new material hoist towers was used for raising work materials to the top platform level.

#### FITS 'EM ALL—LARGE OR SMALL

No matter what you're building, Safway Scaffold will fit the job. If it's large or small—high or low—regular or irregular—Safway can show you how to scaffold the job for the most efficient work.

With plenty of elbow room at the best working locations, your men can complete elevated jobs faster and better... and with maximum safety both above and below.

That's why you get greatest economy when you use Safway Scaffold on jobs of every size and type. It will pay you to look into these advantages today!

**For more facts,  
write for your  
FREE bulletin...**

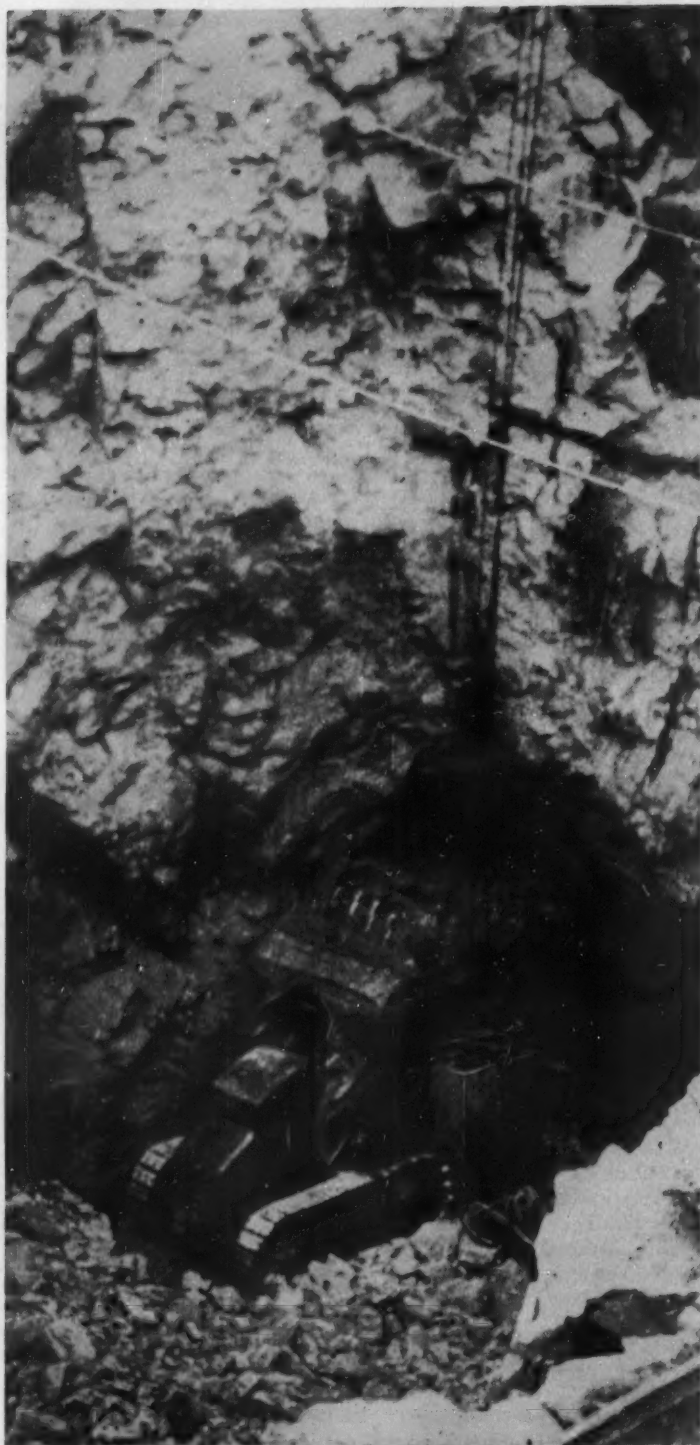


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by distributors  
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## SHAFT SINKING WITH EIMCO TRACTORS

Eimco 105 tractors with excavating attachment are being used for mucking hard rock shafts on the Quebec Hydro job. The 105's are lowered into the shafts and dig their way down to the bottom of the blasted rock.

This is the toughest kind of work for any excavating equipment—only the Eimco was equal to the job. During the long winter, work continued on the job which required all types of well known heavy construction equipment of many makes and when spring came and the accounting was done, the Eimcos showed a higher percentage of availability than any similar equipment.

Eimco equipment is built for these harder than usual jobs. Heavy steel castings are used throughout on the 105. Greater maneuverability makes it usable on jobs where confined areas only are workable. Being able to dig below grade makes it practical in shaft work.

Wherever the going is tough — you'll find the best equipment for tractor, bulldozer or excavator work is the Eimco 105.

Write for more information.

### THE EIMCO CORPORATION

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**PUT NEW PROFIT IN CUTTING CONCRETE!**



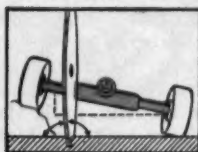
Clipper

CONCRETE SAW

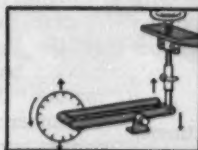
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**SIMPLE in operation  
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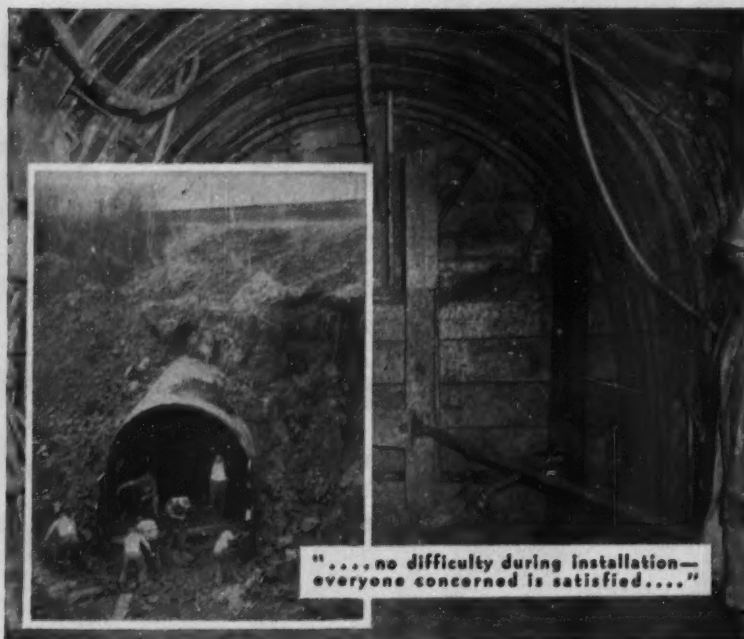
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**SOLD ONLY DIRECT FROM FACTORY BRANCHES**





"...no difficulty during installation—everyone concerned is satisfied...."

## Commercial Steel Tunnel Liners Speed Construction... Traffic Maintained

Traffic on the main line of The Central Railroad of New Jersey had to be maintained while a 97" pipe was laid in soft ground. With only 14 feet of cover above the pipe, the problem of adequate tunnel support was extremely important.

"Commercial" engineers were asked to design a structural tunnel lining to carry all loads that would develop until the pipe could be laid and properly back packed. Ground conditions were such that only small sections of the tunnel face could be mined and left unsupported—and then for a very short time. So the lining had to be one that could be erected quickly and in sections that one man could position until secured in place.

Agreement as to design and method was reached and "Com-

mercial" was told to produce and deliver the steel tunnel lining to meet the schedule. Solid corner "Commercial" Liner Plates curved to exact radii were set into position as the mucking was done, then quickly bolted together into a continuous lining. Closely behind, "Commercial" Steel Ribs, bent to proper contour and completely fabricated ready for field erection, were set inside the liner plates and bolted together.

From the field we are now told, "Everyone concerned is satisfied with this type of construction... the tunnel liners offered no particular difficulty during the installation."

Can we be of assistance to you in your tunnel job? There is no obligation.

THE COMMERCIAL SHEARING AND STAMPING COMPANY  
YOUNGSTOWN 1, OHIO • CHICAGO, ILLINOIS • SALT LAKE CITY, UTAH



"Commercial" engineers will gladly assist you;  
they have the experience and know how.

LINER PLATES • RIBS • SETS • LAGGING

LA-11

## BIG-TRUCK HYDRA-MATIC...

Continued from page 79

tionately lower with part throttle openings, meaning the engine does not have to turn up to full throttle during shifts while the truck is running empty or when using minimum power. The throttle is linked to the Hydra-Matic shift control valve so that a downshift will come if the throttle is suddenly opened from a minimum position while driving down the road. Thus, the engine can turn faster and develop maximum horsepower when needed to increase road speed, and the transmission will automatically upshift at a higher speed under full throttle.

When the reduction unit is shifted, power flow must be broken momentarily by neutralizing the Hydra-Matic unit, since there is no conventional clutch for the purpose. This is done automatically when the reduction unit lever is moved—a function that was the important key to the successful design of the eight-speed Hydra-Matic. The moment the shift is completed, the Hydra-Matic goes back into gear.

### What the Driver Does

Let's see specifically what the driver does. He starts with the Hydra-Matic selector in 1-4 position and the reduction unit lever forward, in low range. After accelerating up to 18 to 20 mph, he takes his foot off the throttle, pulls the reduction unit lever back into high range, then accelerates on up to his top speeds. The low to high shift can be made just as quickly as the driver can pull the lever back, and at the same time get his foot off the throttle and back on again. There is no split shifting or double clutching.

When running empty, he can start out in high range and let the transmission do all the shifting for him. Coming to an upgrade, it will downshift automatically at the proper time to keep engine and road speeds up. If the grade is steep enough to pull the truck down to about 14 mph, the reduction unit should be shifted into low range. The driver has only to push the lever forward. He will learn to keep his foot on the throttle enough to synchronize engine speed with the lower gear furnished.

• The Hydra-Matic selector quadrant has three forward positions, 1-2, 1-3, and 1-4. Position 1-4 is normal for all driving—the Hydra-

Matic can shift progressively from first through fourth gear. The 1-3 position means it will shift up to third only.

The 1-2 position merely allows the Hydra-Matic to shift from first into second, and no more. In conjunction with low range in the reduction unit, this may be used in off-road work for deep sand or mud to keep torque multiplication as high as possible. Both 1-3 and 1-2 ranges can be used to hold the truck back with the engine on down grades.

Power take-offs attachable to the two-speed reduction unit, generally are operated with the selector in the 1-2 range to provide proper operating speed.

During this description of driving, there is no mention of what gear the Hydra-Matic unit is selecting at any one time. Actually, the purpose of the automatic transmission is to eliminate the driver's concern about gear positions; the unit will come up with the right gear at the right time.

#### Twin Hydra-Matic

A further advance in heavy-duty automatics is GMC's newest, the Twin Hydra-Matic, consisting of

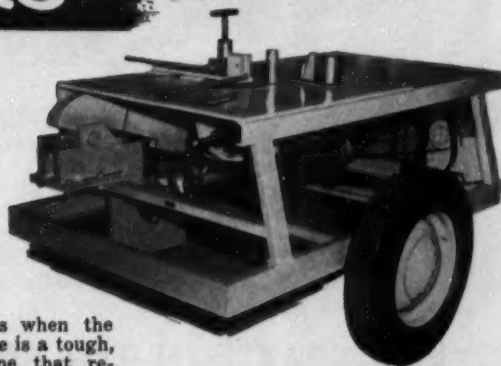


SLIPPERY FOOTING and other rugged going around construction sites are handled easily, smoothly and surely, because the transmission automatically sets up the most efficient gear ratio between the engine and drive wheels, eliminating abuse of parts.

## CONTRACTORS

"THIS IS IT"

### The IRON MAN Hydraulic-Portable ROD BENDER AND SHEAR



#### WHAT IT IS:

You have a jump on costs when the IRON MAN takes over. Here is a tough, automatic, precision machine that reduces re-rod fabrication to seconds—on the job, where and when you want it.

#### WHAT IT DOES:

It works on location—tailors your metal to on the job needs, sheared to length, formed accurately to specifications in rods-per-minute volume. It earns extra profits for you.

#### WITH ALL THESE ADVANTAGES:

It's Durable!	It Cuts Costs!
It's Portable!	It Works Fast!
It's Hydraulic!	It's Accurate!
It's Automatic!	It's Efficient!

#### WRITE FOR FURTHER INFORMATION

Here's the only machine combining bending and shearing in a single portable unit. Mail this coupon today.

Acme Equipment, Inc.  
Central Trust Building  
Altoona, Pa.  
Please furnish specifications, net prices and shipping information on the IRON MAN.

Name .....

Street .....

City ..... State .....

☐ Contractor ☐ Equipment Dealer



▲ Hydraulic disc forces bend in four 1/2" rods.  
Four stirrup hooks are bent at one time. ▼



#### ACME EQUIPMENT, INC.

International Distributors  
Central Trust Bldg., Altoona, Pa. Tel. 3-7911  
Mfd. by Livingston Machine & Tool Co., Inc.,  
Frostburg, Md.

# UNIT on the Job

**UNIT 1020 offers every requirement for dragline operation—low ground pressure—stability—rotating fairlead—fast digging—rapid swinging—quick dumping.**



Perfectly balanced for long boom operation, the UNIT 1020 is ideal for general excavation work, sand and gravel pits, irrigation, drainage and stripping operations. Available with UNIT TORQUE DRIVE, this machine gives you smooth performance, eliminates "shock loads", cuts fuel expense. Write for literature.

**DIGS** *Deeper*  
**SWINGS** *Easier*  
**LOADS** *Faster*

## UNIT CRANE & SHOVEL CORPORATION

6305 WEST BURNHAM STREET

MILWAUKEE 14, WISCONSIN, U. S. A.



**1/2 or 3/4 YARD EXCAVATORS... CRANES UP TO 20 TONS CAPACITY  
CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL**



## BIG-TRUCK HYDRA-MATIC . . .

*Continued*

two Hydra-Matic units mounted one on top of the other. Power from the engine is divided by a unique differential gear into both units. Behind it, power is combined again into a common output shaft that drives a three-speed synchro-mesh reduction gear box.

The Twin Hydra-Matic automatically comes up with seven evenly stepped gear ratios. Its companion three-speed reduction unit provides a 3.71:1 creeper gear, 2:1 low and direct. The extreme low available is something on the fantastic order of 83:1! Surely a super-sensitive creeper or a super-power setting to meet all needs!

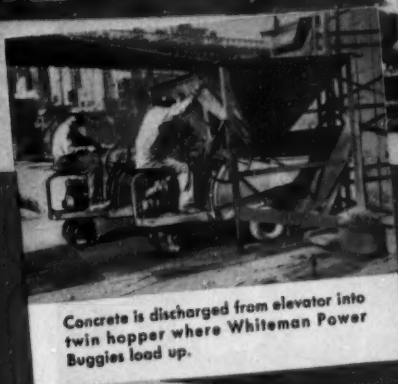
Twin-Hydra-Matics so far have been teamed with heavy-duty diesel engines because GMC recognizes the importance of accurate gear changes for highest efficiency within the relatively narrow operating range in rpm's peculiar to diesels. Heavy-duty gasoline engines present a similar situation and are expected to be next on GMC's list of trucks equipped with the Twin. The single model in production employs a 150-hp 4-cyl GM Detroit diesel engine, is in the 60,000-lb GCW range.

The Hydra-Matic is not sold as an accessory. It is assembled into the chassis as the truck moves across the factory production line.

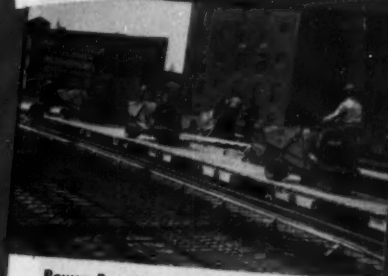
It is a revealing experience to drive a loaded truck with this transmission. There is practically no work, and the driver can give full-time attention to road conditions. It acts as the driver's memory, never forgetting to shift down at the right moment to keep the engine from lugging or to shift up when the going gets easier. All this adds up to longer life for the engine, little abuse on driving axles, no clutch maintenance.

For those contractors who have had to make major repairs on heavy truck transmissions by the time new drivers have been trained, GMC Hydra-Matic trucks could be the answer. A green driver cannot abuse it or the engine, except willfully. And he can operate both on and off the road with equal facility. The gradual and controlled application of power in mud or loose ground under foot means less slippage, better performance of big dumpers, transit mixers, lowboy tractors and such. Less driver fatigue and a corresponding increase in safety are dividends on long hauls.





Concrete is discharged from elevator into twin hopper where Whiteman Power Buggies load up.



Power Buggies speed along runways at fast clip, handling average 10 yd. per hour on 300 ft. haul.



Highway deck slab is spread and finished to a perfect level with Whiteman Screeding Machines.

## Whiteman POWER BUGGIES & 2 SCREEDING MACHINES HANDLED

# 215 YARDS OF CONCRETE PER DAY!

A tough assignment... delivering and pouring concrete for a highway 23 to 31 feet above heavy traffic. Yet it was done smoothly, efficiently on Manhattan's East River waterfront through the use of Whiteman Power Buggies. Operating over portable wood runways, four Power Buggies handled from 180 to 250 cu. yds. of concrete in a 5 to 6 hour period, averaging better than 40 yds. per hour on an average 300 foot haul.

Screeding and finishing concrete for the highway deck was done in record time by two Whiteman Screeding Machines\* covering a 37 1/2 ft. wide slab pour... saving time, compacting the slab, bringing moisture to the surface and screeding to a perfect level.

Whatever your problems in placing and finishing concrete, call your Whiteman distributor for helpful information.

\* Approved by New York State Highway Engineers

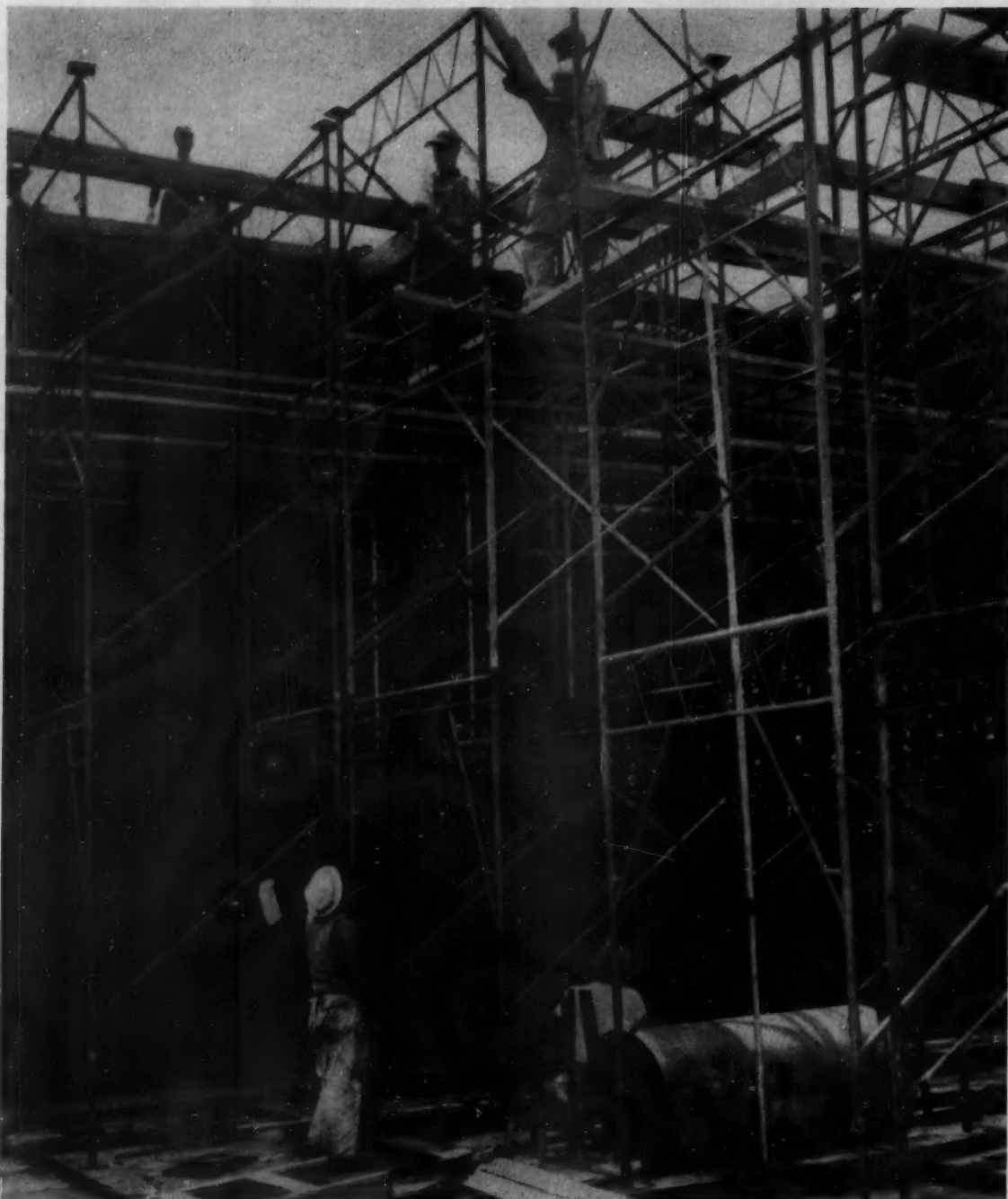
General Contractor: Sullivan Pile Co. Subcontractor for concrete deck: Laidl Connecting Corp.

# Whiteman

THE LEADER IN CONCRETE EQUIPMENT

WHITEMAN MFG. CO., DEPT. C  
3249 Casitas Ave., Los Angeles 39, Calif.  
Please send prices, literature and name of distributor for ☐ Screeding Machines, ☐ Power Buggy ☐ Floating Finishing Machines.

Name \_\_\_\_\_  
Firm \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



STEEL SHORING is easily leveled by men on the ground. Here, a worker for contractor George A. Fuller Co. is adjusting 20-in. exten-

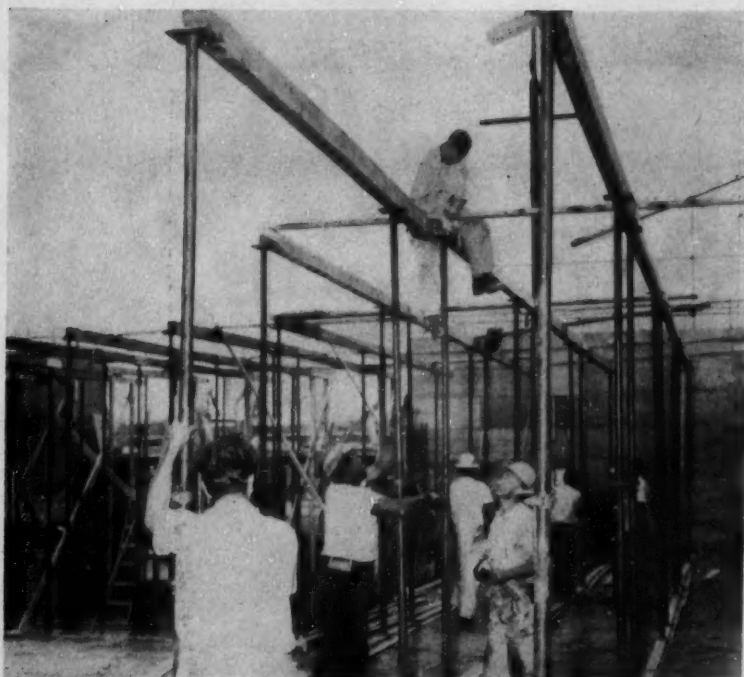
sion screw legs to obtain exact height on scaffolding for the Colgate-Palmolive-Peet Co. warehouse building in Jersey City, N. J.

## Modern Concrete Shoring

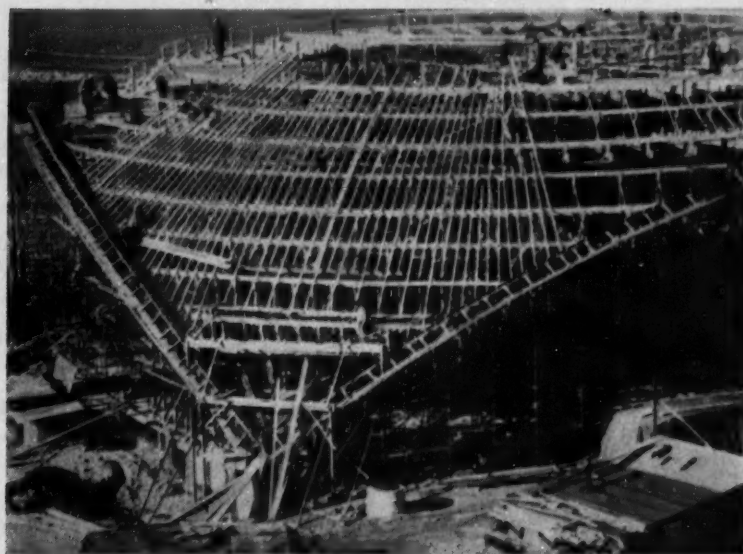
***Three accurate methods speed pouring schedules, cut construction costs***

THE ADVANTAGES OF using quickly assembled steel scaffolding for concrete shoring are becoming increasingly important to the construction industry as more contractors report gains in building time and costs, realized by using one of the three basic steel shoring methods.

The three fundamental steel



C. R. PARK, general contractor of Pomona, Calif., rented 800 all-steel shores for this construction job. Single post shores, shown here, are time- and money-savers.



SECTIONAL SHORING supports spherical triangle dome at the Massachusetts Institute of Technology. It was shored by using 1400 "Trouble Saver" steel scaffolding frames.

By A. C. BORGMAN, Chief Engineer, The Patent Scaffolding Co., Inc.

shoring techniques, enabling a contractor to meet the specific requirements for any type of concrete construction, are:

**1. Sectional Steel Shoring** — Successfully used with lightweight or

standard types of concrete, it meets all requirements for four main types of concrete structures: Flat slab; flat slab with drop head columns; pan joist with 20- or 30-in. pans; intermediate beam.

Sectional shoring end frames are

a standard 5-ft width, varying in height from 3 to 10 ft. The diagonal braces, used to join the end frames horizontally, are available in various lengths. Providing the desired spacing between end frames, these braces are secured to frames by wing nuts. Safe working load for sectional steel shoring is 3,500 lb. on each frame leg (7,000 lb per frame) when the load is applied directly on frame legs. These figures are based on a safety factor of 3 and apply to conditions requiring one or more frames in height.

The exact amount of sectional steel scaffolding required for any shoring job may be either bought or rented.

Construction men point out that an advantage to the contractor who uses sectional steel frames and braces is that they serve equally well for shoring or scaffolding, thus serving a dual purpose at one cost.

## 2. Tube and Coupler Steel Shoring

—Used successfully to meet unusual jobs conditions—such as extreme heights, uneven footing or terrain, odd levels or shapes.

Patent Scaffolding's TubeLox shoring, for example, is erected from four basic parts: 2-in. o. d. galvanized steel tubes 6, 8, 10, 13 and 16 ft long, with bayonet-type fittings to permit assembly of units of any desired length; right-angle couplers for joining tubes at right angles, adjustable couplers for joining members at other than right angles, and bases. Safe gripping power of the couplers is 2,500 lb.

## 3. Single-Post Steel Shoring

—For this type of support, the all-steel shore offers important advantages that save hours of installation time, provide quick and accurate leveling to exact height and insure locking for dependable support.

Steel shores eliminate the clutter and cost involved in most old-fashioned shoring. One man can easily carry, place and adjust these shores. All that is needed usually is to raise the inside tube to approximate height, insert a steel pin into the nearest holes, then turn the handle for final adjustment. No loose parts, sawing or fitting.

## Advantages of Sectional Steel Shoring

**Cuts Costs**—Contractors are able to plan each job for new efficiency. Prefabricated parts take less time to erect and dismantle.

**Eliminates Guesswork**—The exact number of scaffolding components



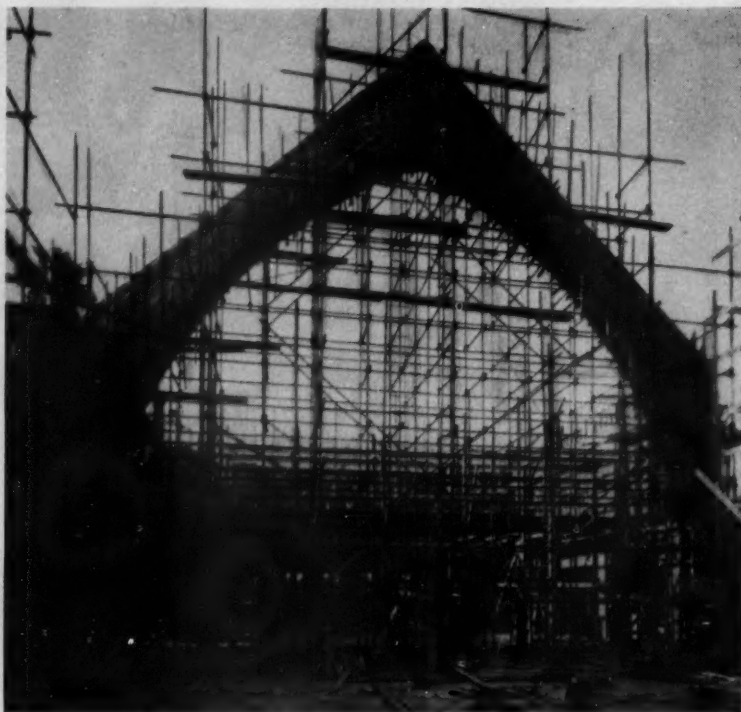


*you  
get  
more...  
with a  
Marlow!*

MARLOW PUMPS  
RIDGEWOOD, NEW JERSEY

Div. of Bell & Gossett Company

## CONCRETE SHORING ... Continued



BECAUSE TUBE AND COUPLER steel scaffolding components can be assembled to provide shoring for unusual heights, California contractor J. A. McNeil Co. used them on this church.

required for each job, and the cost, can be accurately forecast before construction is started.

**Speeds Up Work**—No time is spent in sawing and fitting timbers. All shoring goes into place quickly.

**Ends Waste of Material** — Steel shoring components can be used indefinitely, while wood shoring has limited re-use value.

**Adjusts Quickly**—Erectors set or lock components into position, then take up on adjustable legs to lift shoring and forms or blocking timber to grade.

**Clean and Neat**—Steel shoring does away with messy braces and presents an appearance that reflects credit on the builder.

**Safety**—Sectional shoring overcomes the uncertainties involved in calculating the exact strength of built-on-the-job shoring. It also eliminates the necessity for skilled carpentry.

**Double Use**—Sectional-type shoring can also be used, without dismantling, as a platform for stripping of forms. Sectional shoring units can be moved to slab section

with a minimum of dismantling.

**Eliminates Fire Hazard**—Since the use of wood is held to a minimum, fire hazards practically disappear.

### Preparing Estimates or Layouts

During preparation of estimates or layout drawings, the contractor who plans to use steel shoring is advised to consider the following points: Type of concrete—standard or lightweight? Total load of slab, beam and girders? Size of joist and stringers to be used and method of framing? Is the slab to be weighed by shoring material or other factors?

On multiple story buildings, sufficient shoring is usually required to shore two slabs simultaneously. In other words, the shoring under the first floor must remain in place until the second floor slab has been poured. If the job covers an unusually large area, it is frequently possible to shore only a portion at one time. If this is possible, a minimum amount of framing lumber can be used, further reducing the cost of the job. Maximum clear-aisle space should be provided in both directions as a convenience for workmen during form-setting, pouring concrete and stripping forms.



**ANOTHER CONSTRUCTION RECORD WAS ESTABLISHED** in the opinion of experts when two bridges were built over the Hackensack and Passaic Rivers in record time for the New Jersey Turnpike. The most modern time-saving methods were used throughout construction. Fast, dependable, pump pictured above is a Marlow 6" AGC rated unit. Marlow Pumps, of course, were used to dewater the cofferdams prior to driving piles and pouring concrete piers.

## **marlows** do the job faster!

Contractors everywhere are buying more Marlow Self-Priming Centrifugal Pumps . . . built to meet the tough and exacting requirements of the job. Faster, more dependable priming on high suction lifts, simplicity of construction for better operation, lower maintenance and longer life are combined with high efficiency and low fuel costs to give contractors the features they demand. See your Marlow dealer today or write for Bulletin C-52.

**MARLOW PUMPS • RIDGEWOOD, NEW JERSEY**

DIVISION OF BELL & GOSSETT COMPANY

# 3 mighty Manitowoc 3000's lick 500,000 yards of rock for DINARDO, INC.

Once again, Manitowocs are chosen to handle a rough, tough rock job. Approximately 700,000 yards of rock and shale are included in Dan Dinardo's contract on the reconstruction of State Route 88 near Sewickley, Pa. Three big Manitowoc 2½ yd. shovels were selected to handle the toughest 500,000-yard section on the job.

Dinardo depends on the Manitowocs to whip the meanest stretches and slug out the biggest part of the job—and yet, there is less down time with the Manitowoc's than any other shovel on the project. That's the big advantage of having Manitowoc's rugged construction, fast working speeds and tremendous power at the dipper, working for you.

Do what Dan Dinardo does—and what contractors all over the nation are doing—put a Manitowoc on *your* job and protect your margin of profit.



## MANITOWOC

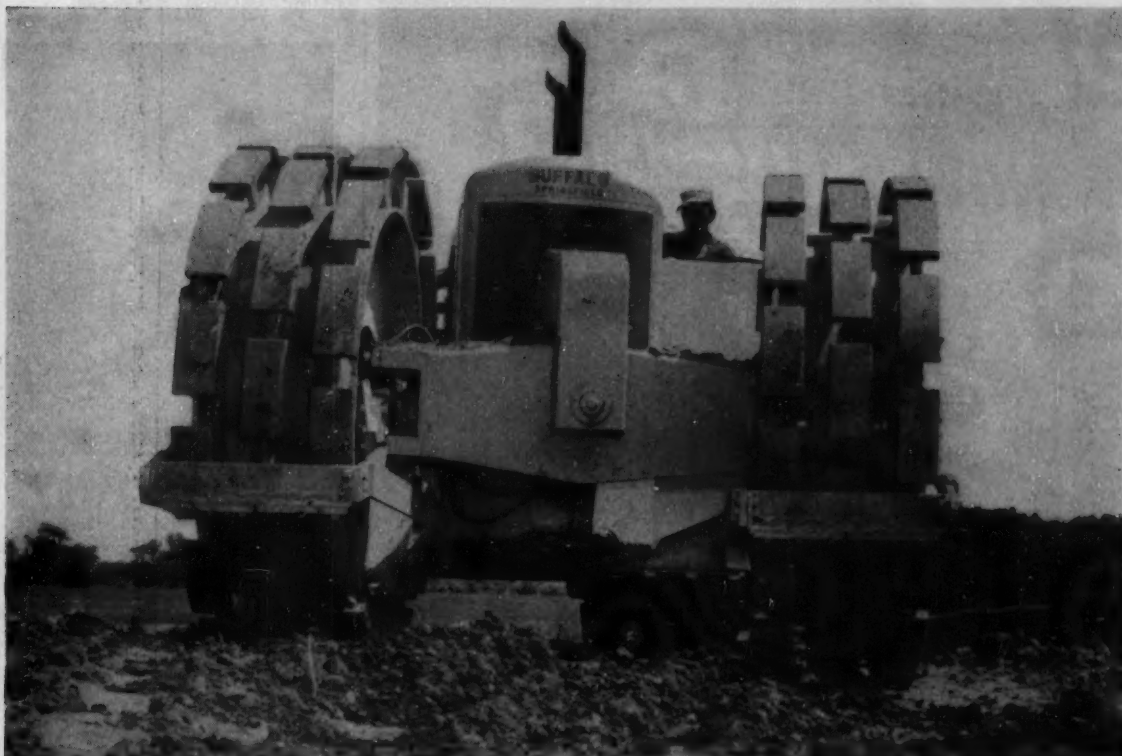
SHOVELS  
1-5 YD.

*Sheelcase*

CRANES  
18-100 TON







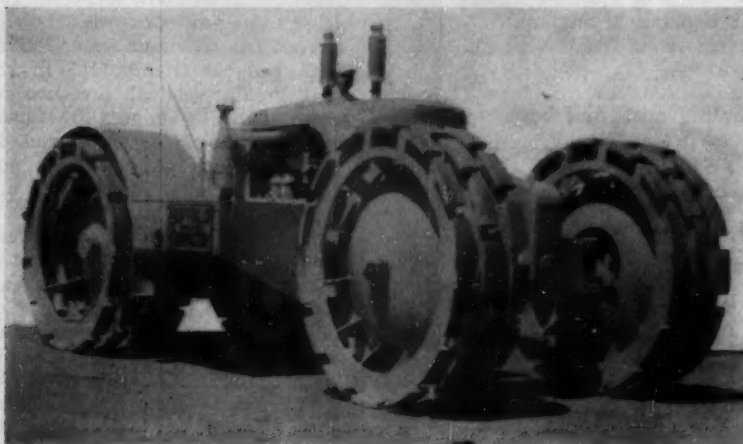
BUFFALO-SPRINGFIELD KOMPACTOR is not only unusual in appearance but also gives unusual performance. Key to high density in

compaction is the four large segmented wheels, that create vertical pressure on the ground at the rate of 580 lb per lin. in. of pad.

## Kompactor Gives Specified Density in Fewer Passes

A CM&E Equipment Report

By RALPH H. LEWIS, Associate Editor



KOMPACTOR WEIGHS 32,000 lb with a wheel base of 13 ft 10 in. Its best rolling width is 5 ft 3½ in. and it requires just under 30 ft for outside turning radius.

MAKE WAY FOR a new type of compaction roller—the K-45 Buffalo Springfield Kompactor.

If nothing more, just from design and outward appearance alone, this roller is in sharp contrast to the usual smooth-face or sheep-foot type roller, and Buffalo-Springfield Roller Co., Springfield, Ohio, claims it will greatly exceed specified densities with less passes than other rollers. For proof they show you the result of comparative tests conducted recently on a section of the Ohio Turnpike where the K-45 was meeting density requirements in one-fourth the number of passes normally required.

Buffalo-Springfield has been developing and testing machines using this new principle of compaction for more than 4 years. A limited number of the Kompactors have been in service on actual construction jobs during the last 2 years. Now that they have been fully tested and modified, Buffalo-Springfield is offering them for general distribution.

The principle that makes this roller different is the four segmented large-diameter wheels which provide interrupted pressure, pre-

The Better-Than-Ever Battery...  
**NOW STILL BETTER!**



ULTRA START® Batteries, with the new dual-purpose Levellex\*, for seasonal control of electrolyte level, deliver increased power in cold weather... meet heavier starting loads. In hot weather, they withstand high under-hood temperatures. Silvium®, the exclusive and patented corrosion-fighting grid alloy, and powerful G.O.X. active material, insure long lasting plates, with ability to hold their capacity throughout an unusually long life!

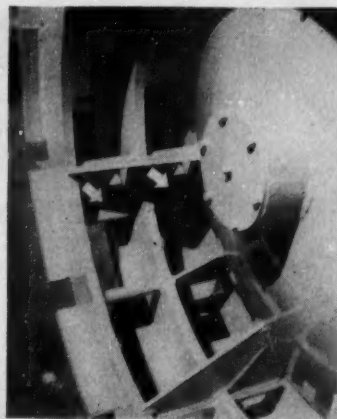
You can lower your operating costs and keep down-time to a minimum with Exide ULTRA START Batteries. Get the facts now from the Exide Distributor nearest you! He's listed in your classified telephone directory.

Exide AUTOMOTIVE DIVISION  
 THE ELECTRIC STORAGE BATTERY COMPANY  
 Princeton, N. J.

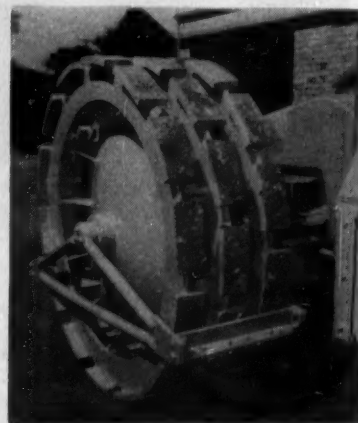
Exide Batteries are sold by Exide Limited, Toronto

**Exide**  
**BATTERIES**

## KOMPACTOR . . . Continued



UNDER ADVERSE CONDITIONS pads would pack with mud and other material so the engineers designed these efficient pad cleaners.



DOUBLE-PAD SCRAPERS are used to clean exterior of wheels. Front wheels have 3 pads across and drive wheels carry 4.

venting loose material from flowing ahead of the wheels. The segmented rollers can best be described as a smooth-face roller with pads or islands, 188 in all, that create vertical pressure on the ground. It's claimed these pads exert 580 lb per lin in. of pad, as compared with half on conventional type rollers. The islands are staggered on the wheels in such a fashion that at least 3 pads on rear wheel and 2 on front wheel are in contact with the ground under all conditions. The arrangement of these pads is such that compaction takes place without objectionable laminations.

The front wheels are 69x23 in. with 42 pads on each wheel in banks of three each. The pads  
 (Continued on page 94)

# GULF PRODUCTS *and* FINE SERVICE

*keep equipment rolling  
on Pennsylvania Highway Project*



Hempt Brothers, Camp Hill, Pa., are making rapid progress on the relocation of Pa. Route 126 in Fulton County. The project involves 1,250,000 cubic yards of Class 1 excavation, the construction of three large viaducts, 40,000 feet of tile underdrains, and 86,000 tons of crushed stone base. The equipment shown here is operated by M. H. Bigan Company of Windber, Pa., which has the subcontract for 550,000 cubic yards of excavation. At the left is Mr. M. H. Bigan, owner of the M. H. Bigan Company, on the right is Mr. J. S. Buchanan, Gulf Sales Engineer.

**T**HERE are three solid reasons why it pays to specify the products identified by the familiar orange disc. One is the all-round smoother equipment performance and fewer mechanical delays that result from better lubrication with Gulf quality oils and greases.

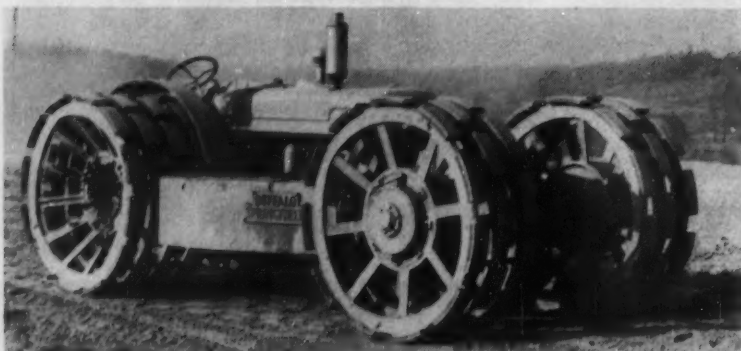
Another is the expert engineering counsel that Gulf provides to insure the use of the most suitable lubricants and fuels for every unit of equipment and operating condition.

Third—and often mighty important—is Gulf's prompt delivery service through more than 1200 conveniently located warehouses in 30 states from Maine to New Mexico.

Let us discuss with you how Gulf products and services can help you on your next job. Gulf Oil Corporation • Gulf Refining Company. Gulf Building, Pittsburgh 30, Pa.







EARLY MODEL of the present machine. This one weighed only 12-ton and was powered with an IHC UD-9A engine. It presently is working on Ohio Turnpike.



Kroger supermarket in Glendale, Missouri. Architect: Cay Weinel, St. Louis, Missouri. Contractor: White Development Corporation, St. Louis, Missouri.

## EASY DOES IT

... with lightweight, versatile

## LACLEDE STEEL JOISTS

Fast placing and erection . . . combined with modern design and strength make Laclede Steel Joists the answer to today's needs in roof construction.

### Specify these LACLEDE Products:

Multi-Rib Reinforcing Bars • Steel Pipe • Welded Wire Fabric  
Form and Tie Wire • Spirals • Conduit • Corrugated Steel Centering



**LACLEDE STEEL COMPANY**

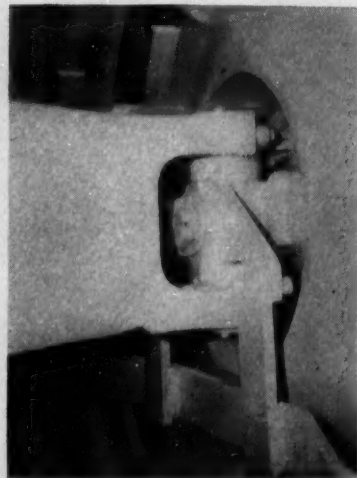
St. Louis, Mo.

measure  $5\frac{1}{2} \times 11\frac{3}{4} \times 1\frac{1}{4}$  in. on these wheels.

The rear or drive wheels measure  $69 \times 31\frac{3}{4} \times 1\frac{1}{4}$  in. with 52 pads on each wheel in banks of four. These pads measure  $5\frac{1}{2} \times 13\frac{3}{4} \times 1\frac{1}{4}$  in.

The K-45 is a big machine. It weighs 32,000 lb with a wheel base of 13 ft 11 in. It measures out 20 ft 10 in. from front to rear and 8 ft 9½ in. across its widest section. Its effective compacting width is 5 ft 3½ in. Ground clearance is adequate with 19 in. The turning radius (outside) is 29 ft 6½ in.

The machine is equipped with a



KING PINS ON FRONT AXLE are forged integral with steering knuckles. This axle can also oscillate 18 deg up and down.

heavy-duty industrial-type diesel engine having 110 hp at 1,800 rpm.

The transmission is of the single enclosed unit type with three-stage torque converter drive. It has a two-range, full reversing transmission which gives speeds in either direction from ½ up to 5 mph.

The front axle is center-swivelled and provides 18-deg oscillation up or down from horizontal. The rear axle is stationary and is made from alloy steel. The unit has 4-wheel air over hydraulic brakes.

The main frame is made from structural steel and plate, reinforced, cross-braced and welded throughout. A heavy pusher-type bumper is mounted across the entire rear of the frame.

Officials of Buffalo-Springfield Co. commenting about the new K-45 enthusiastically declare: "We've been in the business of making rollers for 65 years, and we believe this new K-45 will change the time

(Continued on page 97)

# NEW TIMKEN-DETROIT ALL-PURPOSE BRAKE

*For trucks,  
trailers, hoists,  
tractors,  
harvesters,  
cranes, buses,  
shovels, mixers,  
machinery, etc.*



## Offers you these 7 exclusive advantages!

**1. New Simplicity!** Only 8 simple parts. Shoes and springs are completely interchangeable. For instance — brake shoes can be "slapped in." Position of the shoes makes no difference . . . it's impossible to install them incorrectly. Simplifies stocking—only 6 different parts required to completely replace the brake.

**2. No Lubrication Required!** Maintenance reduced to the absolute minimum. No skilled help needed because it's "foolproof" to service and install. No inside adjustment necessary.

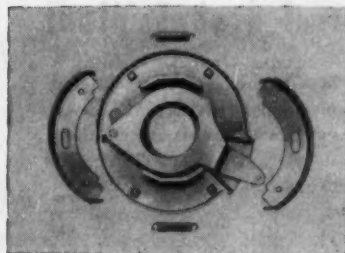
**3. Enclosed Design!**—protects against dust, dirt, water, contamination. Prolongs brake life, reduces fire hazard.

**4. Lightest Weight!** This new development by TDA is in a class by itself. For example: the 13-inch drum size weighs only 40 lbs. as against 80 lbs. for an ordinary band brake!

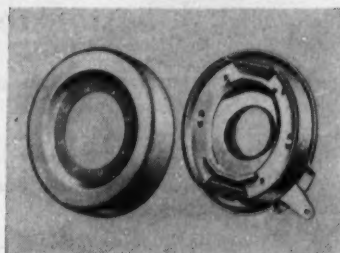
**5. Less Cost!** These brakes use lightweight stamped steel shoes of new design as against ordinary heavy, more costly cast shoes. Wear longer with increased braking power.

**6. New Balanced-Type Design!** Exerts equal torque—in both directions. Balanced pressure makes both shoes do same amount of work. Brake linings have uniform wear pattern . . . constant, smooth performance.

**7. Five Times Longer Brake Lining Wear,** proved in actual road and work tests. This means less maintenance costs for operators . . . less inventory to stock. For instance: one manufacturer plans to use *three* of these new brakes to replace *five* types now employed.



Look how simple it is! No tricky assembly. Just remove two springs and lift out shoes. Put it together in minutes. No adjustment of brake required.



Here's the combination that gives this brake its outstanding superiority. Fewer parts to wear, to stock—longer life—less maintenance—lower cost.

## TIMKEN *Detroit* BRAKES

TIMKEN-DETROIT BRAKE DIVISION  
ROCKWELL SPRING AND AXLE COMPANY  
ASHTABULA, OHIO



**FREE!** Just out . . .

How TDA can help you solve  
your braking problems!

Mail coupon for complete new literature and specialized assistance. This brake is the result of 50 years of Timken-Detroit engineering. Proved in "Torture Tests." Available in all sizes, for any type of work.

Timken-Detroit Brake Division  
Rockwell Spring & Axle Company, Dept. 94, Ashtabula, Ohio  
Please send me complete new literature on this new all-purpose brake. I am outlining my special braking problem on the attached letterhead.

Name \_\_\_\_\_ Position \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_

# SO YOU WANT TO GET INTO THE ASPHALT BUSINESS --



## UNIVERSAL Speed Batch . . . push-button control asphalt plant

**Two men can operate it** — and neither needs to be highly skilled. You have centralized control over the entire plant with electric push-button and pilot control valves. Easy to operate, clearly labeled push-button controls eliminate guesswork and make it a simple matter for the operator to speed up the production cycle.

**Minimum investment required** — and operating costs are low. You can make a production run or one batch, change mixes as often as you need to with hardly any delay, dry only the exact amount of aggregate to be used. Maintenance cost is low, too, with all parts easy to inspect and adjust.

**A high quality plant** — Like all Universal equipment, the Speed Batch Model 2000 is quality engineered throughout. For

example: drying drums are heavily insulated to retain heat and increase plant output; plant is highly portable with dryer, pugmill, dust collector and all power and controls on one sturdy frame — meets highway limitations; piping is simplified, with one connection each to Bitumen and fuel supply lines.

**Get full information now** — Yes, this is your plant, if you want to get into the profitable asphalt business without a heavy investment. See your Universal distributor or write today for an 8 page illustrated booklet on the Universal Speed Batch Model 2000 Asphalt plant. Write Universal Engineering Corporation, 327 8th Street, N.W., Cedar Rapids, Iowa.



### UNIVERSAL ENGINEERING CORPORATION

327 8th Street, N.W., Cedar Rapids, Iowa

A Subsidiary of Pettibone Mulliken Corporation, 4700 W. Division St. Chicago 51, Illinois



# KOMPACTOR . . . Continued from page 94

and cost picture and give better results on any soil compaction project."

One Midwestern contractor, who has used the new type Buffalo-Springfield machine said: "It not only exceeds the specification requirements but we also estimate it has saved us up to 50 per cent of normal compaction costs. Being self-propelled, it eliminates the necessity of a separate power unit, which requires less initial investment."

## QUICK SPECIFICATIONS Model K-45

### ENGINE

Type ..... Heavy-Duty, Industrial, Diesel 110 hp  
Lubrication ..... Full Pressure With Oil Filter

### TRANSMISSION

Type ..... Enclosed Single Unit Including Torque Converter, Clutch Reverse, and Differential  
No. of Speeds ..... 1/2 to 5 mph Either Direction  
Speed Control ..... Lever Control for Torque Converter Governor

Air Cleaner ..... Oil Bath, Stack-Type  
Reversing Gears ..... Two Spiral Bevel Gears and Pinion  
Clutches ..... Large Diameter Twin Disk-Type  
Differential ..... Torque Proportioning Bevel Gear-Type  
Bearings ..... Ball-and-Roller  
Lubrication ..... Oil-Splash  
Final Drive ..... Gear Drive to Rear Wheels Thru Differential

### REAR AXLE

Type ..... Stationary, Alloy Steel, Large Diameter

### FRONT AXLE

Type ..... Center Swiveled, 18-deg Oscillation Up or Down from Horizontal, Heavy Steel Box Construction  
Lubrication ..... Pressure-Type Fittings

### COMPACTION WHEELS

Construction ..... Heavy Steel, Electric Welded  
Drive Wheels ..... 69x31 3/4 in.  
Number of Pads ..... 52, Each Wheel  
Guide Wheels ..... 69x23 in.  
Number of Pads ..... 42, Each Wheel  
Wheel Bearings ..... Taper Roller

### MAIN FRAME

Construction ..... Structural Steel and Plate, Reinforced and Cross-braced, Welded Throat

### STEERING

Type ..... Hand Automotive With Hydraulic Booster  
Hydraulic Booster ..... Gear Type, Belt-Driven From Engine Pump

Oil Supply Tank ..... Large Capacity

### BRAKES

4—One on Each Wheel, Hydraulic Actuation Thru Foot Pedal

### DIMENSIONS, WEIGHT, COMPRESSIONS

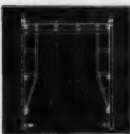
Wheel Base ..... 13 ft 11 in.  
Length Over-all ..... 20 ft 10 in.  
Width Over-all ..... 8 ft 8 in.  
Height Over-all ..... 6 ft 8 in. (Less Exhaust Stack)  
Ground Clearance ..... 19 in.  
Turning Radius ..... 29 ft 6 1/2 in. (Outside)  
Effective Rolling Width ..... 5 ft 3 1/2 in.  
Weight ..... 30,000 lb.  
Compressions ..... 545 lb. per in. (Front and Rear) Face

## SKELETONS OF STEEL

## That Build to Profits - Real

Snow, sleet and rain eat at its surface . . . mortar and plaster cling to its joints . . . workmen clamor over its highest reaches—but ADVANCE scaffold's sturdy framework holds fast on job after job . . . returns user profit year after year.

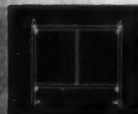
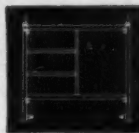
What makes ADVANCE the truly different scaffolding tool for construction and maintenance work?



Just this! Panels and braces carefully engineered and fabricated of highest quality, heavy gauge tubular steel. Panel and brace locking devices electro

welded into integral self-contained units that go up faster—stand more rigid—provide greater safety—dismantle far easier . . . without lost parts.

And—no matter what the task, ADVANCE engineers are ready to provide, without cost, highly specialized assistance that will enable you to realize substantial savings over the use of makeshift wood or outmoded metal scaffold.



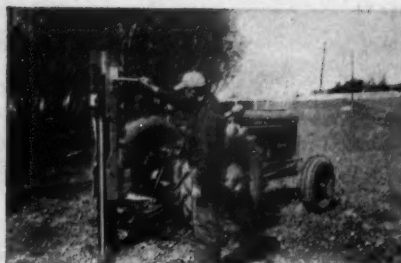
Scaffolding, materials hoisting towers, and other similar tools which carry the Beaver-ADVANCE trademark are available nationally for sale or rental through leading construction and industrial equipment distributors. Clip and mail the coupon for free descriptive literature and the name of your nearest dealer.



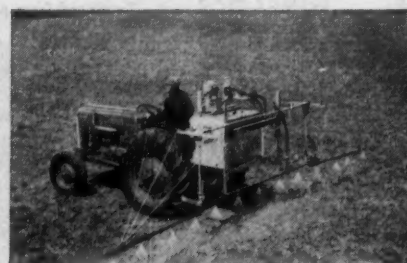
MANUFACTURED BY  
**ADVANCE SCAFFOLD DIV.**  
BEAVER ART METAL CORP.  
ELLWOOD CITY, PA.  
..... AND .....  
MATHEWS CONVEYER CO. WEST COAST  
SAN CARLOS, CALIFORNIA

**ADVANCE SCAFFOLD DIV., Beaver Art Metal Corp.**  
Dept. D Ellwood City, Pa.  
Send free literature on ADVANCE Scaffolding.  
Name.....  
Company.....  
Address.....  
City..... Zone..... State.....

Introducing  
the Brand-New



Rear-mounted post driver



General-purpose and weed  
sprayers

# OLIVER SUPER 55

the all-new, all-purpose tractor



Takes all equipment...  
front, rear or side-mounted!

The built-in hydraulic 3-point hitch operates a wide choice of Oliver and other simple, low-cost tools. And the solid, one-piece frame on the Super 55 makes a convenient foundation for front- or side-mounted equipment.



Hydraulic or mechanical mowers



Rear-mounted 6-foot scraper

**Other attachments include:**

- Rotary and reel-type mowers
- Rear crane lift
- Lifting boom for loaders
- Post hole diggers
- Rear-mounted hydraulic backhoe



Universal frame for dozer blades, snow plows



Rear fork lift carrier



All-purpose, 7-cubic-foot scoop



with everything!

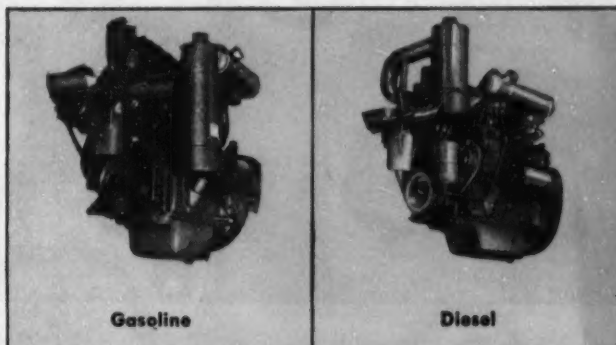


Here is the tractor you have been waiting for. A tractor with all the features you have wanted...all the features that make other tractors its size out-dated! Waiting for diesel power? Super 55 has both diesel and gasoline. Want a tractor you can use anywhere, with any kind of attachment? Try the Super 55...its greater power, weight...its compact, maneuverable size...and its ability to take front-, rear- or side-mounted tools gives you versatility never before had in any tractor! Just look—

**SIX FORWARD SPEEDS**—with a new super low of 1½ miles per hour. Gives greater power at slow speeds, less chance of engine stall-out. Straight-through shift from first to reverse low—makes quick reversing easy.

## See it, drive it, learn the facts!

Stop in at your Oliver Industrial Distributor. Look this new tractor over. Get behind the controls and give it a try. You'll like the profit-making features of this high-performance, powerful Oliver Super 55. See it today!



## Most powerful tractor of its type!

Not only the most powerful, but a huskier, heavier tractor and the *only one* to offer a choice of diesel or gasoline power. Two modern, low-friction, 4-cylinder engines designed to keep your costs at an absolute minimum. Now you can pick the power that fits your needs the best and cuts your costs the most!

**LOW AND COMPACT**—only 4½ feet high. Built low to the ground for stability, yet has a 21-inch axle clearance. 6-foot wheel base makes tight turns easy in close quarters.

**BUILT-IN HYDRAULIC SYSTEM**—internal control for 3-point hitch equipment. External control for mounted equipment. Mounted and 3-point tools may be operated together or separately without closing either system.

**DOUBLE-DISC BRAKES**—give four times the braking surface, yet require half the foot pressure of band brakes. Sure, safe, positive braking forward or back.

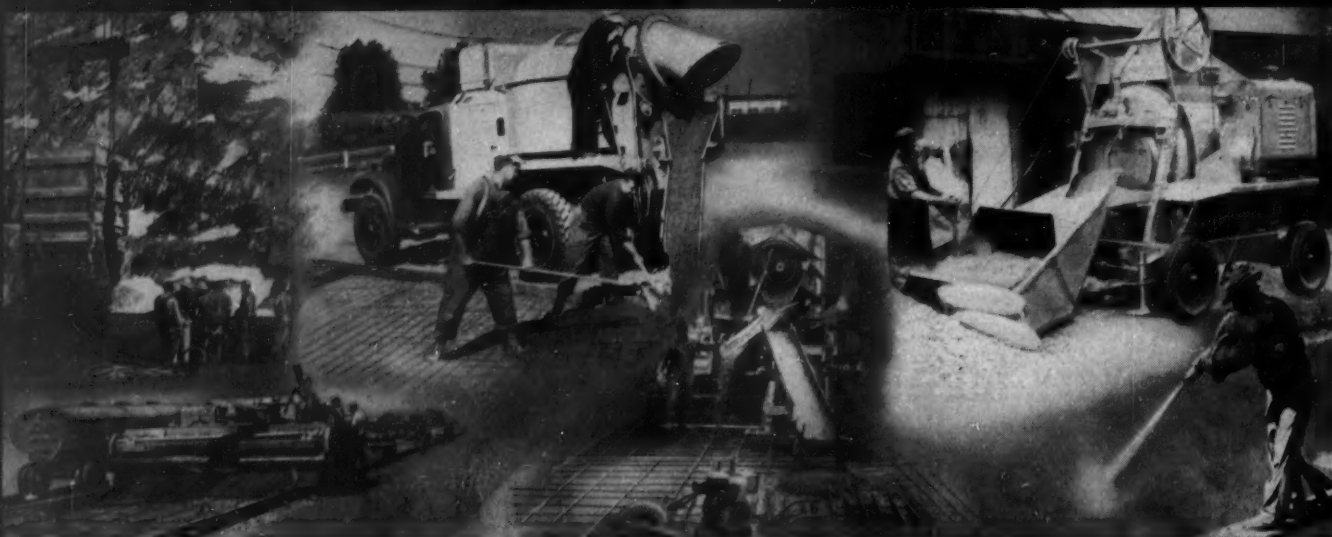
**EASY STEERING**—recirculating ball-type steering mechanism reduces operator fatigue. Makes steering in soft ground tight and maneuvering much easier.

The OLIVER Corporation  
400 W. Madison Street  
Chicago 6, Illinois  
Please send free illustrated catalog on the new Super 55 Tractor.

Name.....  
(Please Print)  
Company.....  
Address.....  
City.....Zone.....State.....



# CONCRETE MIXING AND PLACING



## 9. Controls for the Large Plant

By THEODORE B. APPEL, Jr., Chief Engineer,  
The C. S. Johnson Co., Subsidiary Koehring Co.

**CONTROLS FOR A LARGE BATCHING PLANT** accomplish several things. They:

1. Speed up batching operations. All batches are weighed simultaneously.
2. Increase batching accuracy. Automatic cut-offs can be expected to weigh up batch after batch with a high degree of accuracy.
3. Eliminate, or at least reduce, the number of "botched" batches.
4. Reduce labor force required.

In mass-concrete plants controls and recording equipment may be housed in a single cabinet or two cabinets, one for the controls and the other for recording. It is necessary that switches, buttons, indicating lights and other control devices be grouped so that the operator can efficiently perform his job. Unless remote recording is required, the recording mechanism will be located with the control equipment in a single cabinet.

Most control systems for single-material batchers have as their basic elements a weighing circuit

with a push button or switch which is closed to initiate the weighing operation, a holding circuit to maintain operation until final or near final weight is reached, a dribble feed circuit to finish off weighing, and a discharge circuit.

Provision to permit manual operation is essential, for there will be times when it is desirable quickly to convert from automatic to manual operation.

Fig. 1 shows the bare essentials of circuits for a single-material batcher. In these five views an unconventional presentation of electrical circuits is adopted so that the circuitry can be more readily understood.

The circuits for two or more batchers may be tied together so that they will begin the batching cycle at the same time and be discharged in any desired sequence. This may be done by making the "Batch - Discharge" switch for each batcher one of a battery of switches, all cam-operated. This is the arrangement shown in the diagrams. One "Discharge Timer Motor," one "Discharge All Batchers"

push button and one "Holding Contact" can serve for all the batchers. This part of the diagrams would not be duplicated if more batchers are added.

The "major," "final" and "overload" contacts shown in Fig. 1 may be small switches which require only a tiny operating force. All of these require the elements of a dial scale, even though the dial face may be omitted. All of them, if they are to be of any value, will have means of setting the "cut-off" so it will occur at a predetermined weight. Many of them will require vacuum tube amplifiers.

The switch marked "JS" is a jog, or dribble feed, switch. When the fill valve opens, switch JS also opens, breaking the circuit with the result that the fill valve closes again. The cycle of opening and closing of the fill valve continues, allowing a small amount of material to flow into the weigh hopper each time, until final weight is reached. Some of the interlocks mentioned earlier are included in the schematic diagrams. In the interests of clarity, others have been omitted.

### Mixer Controls

Practically all specifications establish a minimum mixing time and a batch meter usually is provided to guarantee that this con-

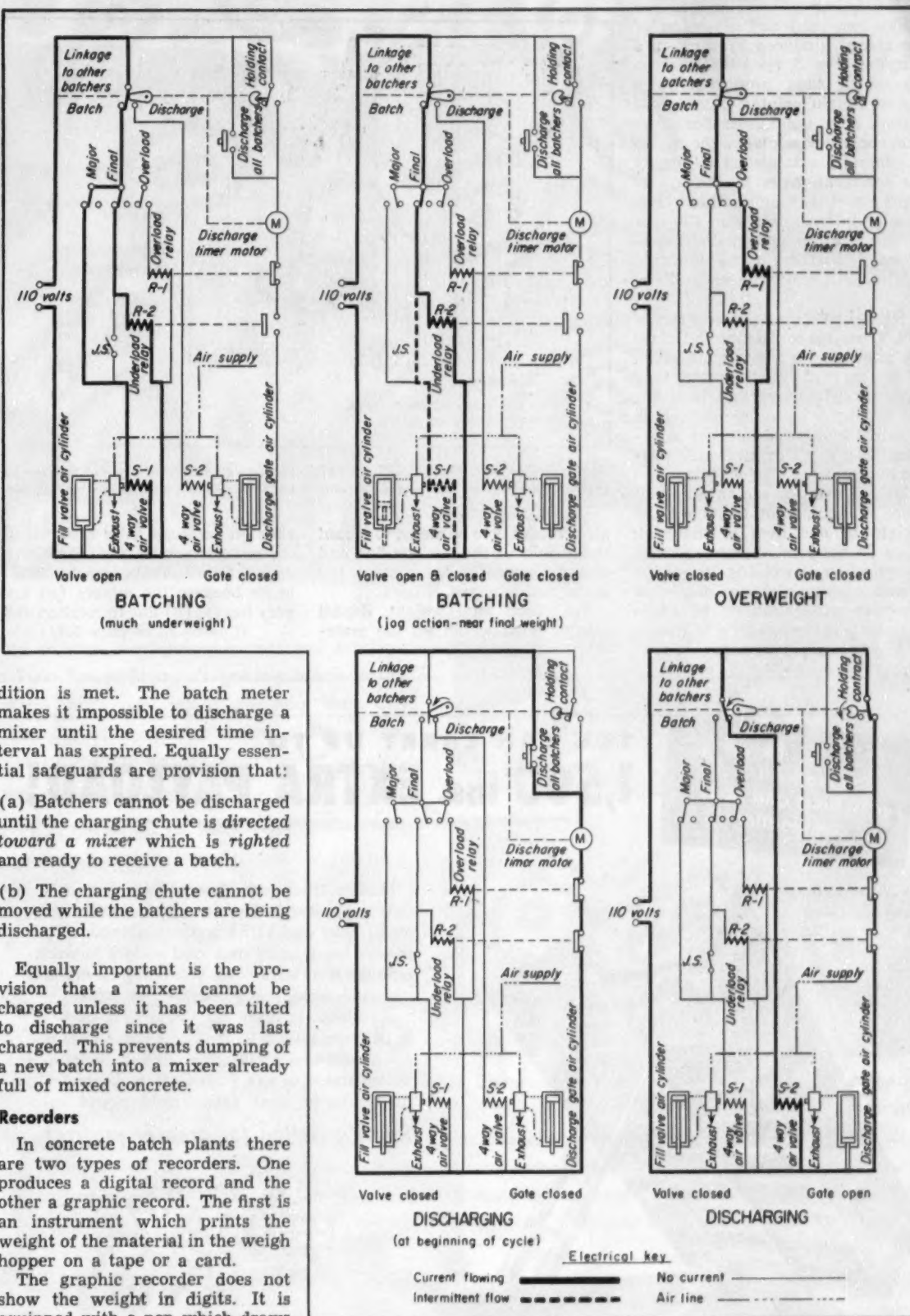


Fig. 1... SIMPLE ELEMENTS NEEDED in a circuit for single-material batcher, portrayed through the batch cycle. Unconventional presentation is used to make operation of circuit better understood. Circuits for two or more batchers may be tied together.

dition is met. The batch meter makes it impossible to discharge a mixer until the desired time interval has expired. Equally essential safeguards are provision that:

(a) Batchers cannot be discharged until the charging chute is directed toward a mixer which is righted and ready to receive a batch.

(b) The charging chute cannot be moved while the batchers are being discharged.

Equally important is the provision that a mixer cannot be charged unless it has been tilted to discharge since it was last charged. This prevents dumping of a new batch into a mixer already full of mixed concrete.

#### Recorders

In concrete batch plants there are two types of recorders. One produces a digital record and the other a graphic record. The first is an instrument which prints the weight of the material in the weigh hopper on a tape or a card.

The graphic recorder does not show the weight in digits. It is equipped with a pen which draws a line on a chart ruled so that the weight in the hopper can readily be estimated at any time. Fig. 2

## CONCRETE . . . Continued

shows two pens and a portion of the record produced by them in a recorder. Fig. 3 (p. 104) shows a sample of tape produced by a digital weight printer.

Both have their uses. For large dam construction plants, the choice is generally established either by the specifications or by the equipment currently manufactured. For smaller plants, whether the recorder is to be used with single-material batchers or a multiple batcher will effect the decision.

• **Digital printers** produce a record which inspires confidence and, if we are interested in a particular batch, is easy to read. Furthermore, they have the advantage that it makes the totalizing of the weights, such as might be desired in order to determine a day's or an hour's production, a mere clerical job.

Digital printers are an excellent piece of equipment to record the weight of one item or material. They do not lend themselves well to recording of weights for ready-mixed concrete plants or plants for mass concrete operations. In batching plants it is necessary, if a com-

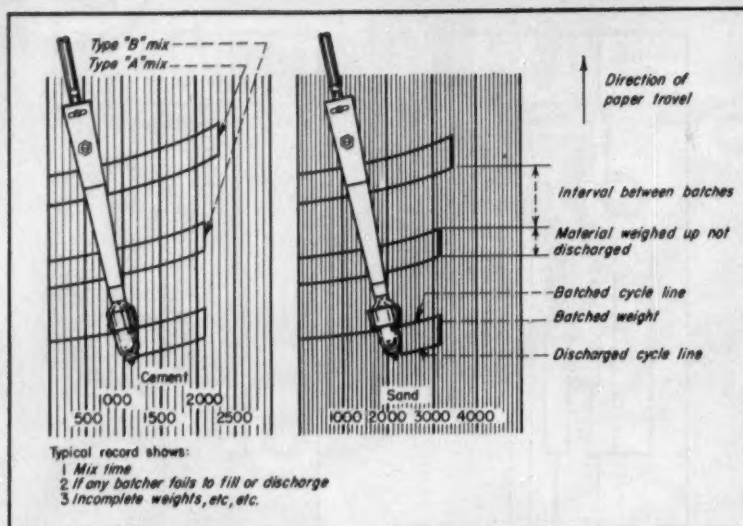


Fig. 2 . . . GRAPHIC RECORDERS OF BATCHES leave a pen-inscribed record that can be checked quickly by an experienced operator or inspector. Various weights can be recorded.

plete record is to be made, to record the weight of the various fine and coarse aggregates, the cement, the water and admixes, if used.

To record total weight, digital printer must weigh all the mate-

rials on one scale only after all of the materials have been combined, as in a mixer. This is most difficult to do because the mixers (a) are very heavy, (b) due to rotation and  
(Continued on page 104)

By using  
Galion Allsteel's  
new hoist and body  
combination . . .

Model 12N-4 body  
and 66381 hoist



## YOU CAN CARRY UP TO 1,500 lbs. EXTRA PAYLOAD!

Modern trucks offer you increased front axle capacity. Galion's rugged, lightweight 66381 hoist and 12N-4 body combination moves hoist, body and load weight forward onto the front axle—lets you carry as much as 1,500 more legal pounds per load.

Available in body lengths to 12 ft. and hoist capacities to 22 tons, this combination offers you new profit opportunities. Better write, phone or see your Galion Allsteel distributor for more details right away! A.A.-78

**Specify Galion for greater profits!**



THE **GALION** ALLSTEEL BODY COMPANY • GALION, OHIO



# 'TWINS' CUT COSTS...

## COMING and GOING!

Because of their tremendous power and traction, Euclid Twin-Power Scrapers get big loads easier and move more pay yards per hour than any other scraper of comparable size... they maintain high production on jobs where other scrapers just can't operate efficiently.

On a 2½ million cu. yd. section of the New York Thruway near Kingston, John Arborio, Inc. has used 7 "Twins" to move extremely difficult material... ranging from river sand to wet clay. On a complete cycle of about 8,000 ft. the "Eucs" moved up to 40% more bank yards per hour and maintained average travel speeds 2 m.p.h. faster than "high speed" competitive scrapers. The "Twins" had plenty of power and traction to haul loads of 17 bank yards on grades up to 20%... they made the return trip from the fill in a hurry, too, thanks to their two engines with separate Allison Torqmatic Drives. Arborio also used a Euclid Loader with a large fleet of Bottom-Dumps, and Rear-Dump "Eucs" on this job.



Owners everywhere say the Euclid Twin-Power Scraper is the most versatile "one man earth moving spread" they've ever seen. If you haven't seen "Twins" in operation, ask your distributor for a copy of the new descriptive folder, Form 551, before you bid your next job.

**EUCLID DIVISION** GENERAL MOTORS CORPORATION, Cleveland 17, Ohio  
Cable address: YUKLID • Code: BENTLEY



# Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE



# 3 NEW FEATURES

improve  
trailer performance

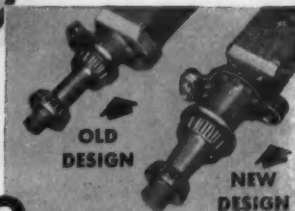
## 1 Lengthwise Decking

Tough oak planking runs parallel with length of trailer for extra strength and durability in end loading . . . is specially recessed for minimum loading height.



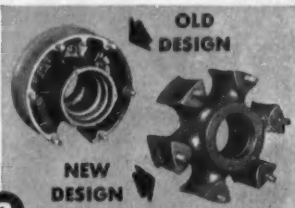
... and now LACROSSE gives you all three!

Here are three more reasons why the best trailer buy in 20 to 40-ton capacity low beds is the new LaCrosse DF6T. This popular tandem axle carrier now gives you extra durable lengthwise decking . . . lighter weight spoke wheels . . . plus replaceable brake spiders. And that's not all! LaCrosse continues to give you up to 2000 lbs. more PAYLOAD capacity per trailer . . . plus bigger brakes with longer-lasting linings . . . still at the lowest price in the industry! Better get full details right now.



## 2 Replaceable Brake Spiders

Exclusive bolt-on arrangement (right) permits quick, low-cost spider replacement, without having to purchase or remove expensive axle assembly.



## 3 Cast Steel Spoke Wheels

Improved La Crosse design, with 6 individual rim lugs, saves 30 lbs. of useless dead-weight per wheel . . . simplifies alignment of wheel and rim.



LC-28

LaCROSSE TRAILER CORPORATION, LaCrosse, Wis.

- ☐ Rush complete information on LaCrosse trailers:  
☐ Specifications ☐ Prices ☐ Delivery  
☐ Send name of nearest LaCrosse Distributor.  
☐ We may buy a ..... ton trailer about ..... (date)

Name ..... Title .....  
 Employed by .....  
 Address .....  
 City ..... State .....

**LaCROSSE**

America's Favorite LOW-BED TRAILER

## CONCRETE . . .

Continued from page 102

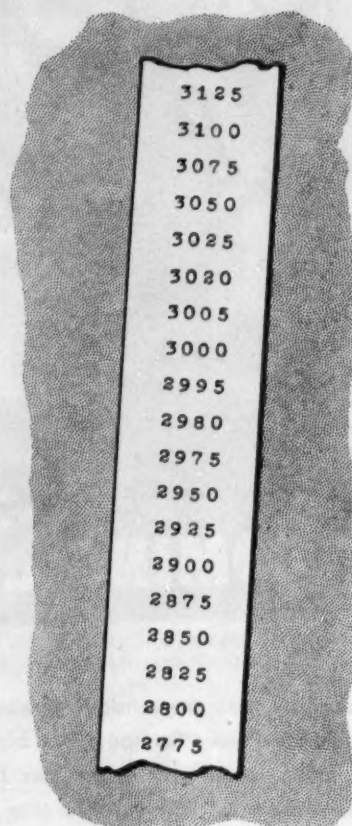


Fig. 3 . . . DIGITAL PRINTERS are excellent to record weight of one material. Are not well adapted to totalizing in tough and grueling conditions around a batch plant.

mixing action would transmit a considerable shock or vibration to the scales, and (c) are not constant in weight due to the build-up of materials on a mixer during a day's operation.

Digital printers have been used to record the weight of one material, like cement, which is the most expensive and also affects the strength.

But digital printers have not worked too well on construction projects. They are designed primarily for industrial or commercial installations. The dusty, humid conditions found in batching plants are not conducive to successful operation. It is a misapplication of equipment to attempt to use them effectively in concrete batching plants.

• The graphic recorder, used extensively in mass concrete operations, has one chief disadvantage: the weight shown by the record (Continued on page 106)

**THE**

**BLAW-KNOX**

*Bituminous  
Paver*

**Brings the low costs of wheel operation**



● The Blaw-Knox Bituminous Paver has demonstrated conclusively the superiority of wheel mounting for laying asphaltic mixes. Out of Pittsburgh on both city street work and county road work, the Blaw-Knox Paver laid Pennsylvania specifications ID-2 hot mix at speeds never before equaled. In some cases the machine handled 16 ton trucks on 12% grades with ease. Rubber tire mounting materially reduced the time required for returning the machine for restarts and long wheel base and accuracy of steering, possible only with wheels, produced a smooth, ripple-free surface under the straight edge.

You will want to know more about this new development in bituminous pavers. Ask for the Greentree Road story.

- ✓ Long wheel base and wheel steering assure greater accuracy and smoother course.
- ✓ Eliminates the 500 to 600 parts characteristic of crawlers.
- ✓ Tires absorb vibration, reduce chatter in screed and reduce wear and tear on machine.
- ✓ Handles boxcar trucks on grades with ease.
- ✓ Dual controls—operate machine from either side.
- ✓ Compacts to uniform density and automatically measures and levels.
- ✓ Leveling principle equalizes ordinary subgrade irregularities.
- ✓ Simple, easy crown adjustment.
- ✓ Conversion for increased width is easy and fast.
- ✓ Works close to curb.

## **BLAW-KNOX COMPANY**

**Foote Construction Equipment Division  
1910 STATE STREET  
NUNDA, NEW YORK**

*On wheels  
it will pave  
for less*



## Precision-built for the man behind the gun...



Model 3000 sold complete with tripod.

## White gives you the most practical Universal Level-Transit on the market

**H**ERE'S a Universal Level-Transit specially developed to handle all survey and checking operations. It's sturdy, accurate and exceptionally easy to use. And — a new single truss standard frame design replaces old-style cross bars and wyes. What's more, it has a silvered  $4\frac{1}{4}$ " horizontal circle and an easy to read 5 minute vernier.

Other advantages of this outstanding instrument include coated optics, internal focusing and a ball-bearing race for smooth operation even in sub-zero weather. Check out a White on your next trip and discover how much easier your work can be. Write for DAVID WHITE Bulletin 1053 and name of nearest dealer, 343 W. Court St., Milwaukee 12, Wis.



We offer expert  
REPAIR SERVICE  
on all makes,  
all types of  
instruments

## CONCRETE . . . Continued from page 104

must be interpreted. For instance, the pen record of the weight of cement in a batch may lie between two lines. This necessitates either scaling or estimating from the chart.

But graphic records have one distinct advantage over digital records. This type of record allows the operator by a sweep of the eye to detect a major malfunctioning of the batching equipment. He very likely can also tell whether any one material is short of its correct weight by an appreciable amount. His ability to detect a shortage will depend to a large degree on his intelligence and his experience. The inexperienced operator, on the other hand, can detect failure to discharge because the pen for that batcher will not return to the zero line. This is easy to see on any graphic chart. Certain ready-mix plants have been equipped with graphic recording.

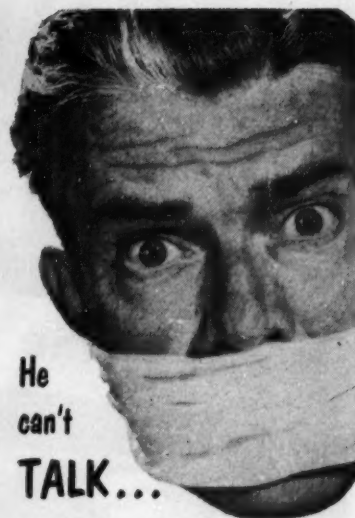
In plants for mass concrete operations it is usual that one mix will be set up and repeated for a considerable number of batches. At most, there may be six or eight different mixes required on the job. When one batch is repeated, the operator can, by a glance, readily detect the differences in weight of each ingredient between the two batches for, if the weights are correct, the pens will reach the same positions on the charts for each material.

As with digital recorders, the record can be made to show the weights of the individual materials, instead of the accumulative weights. Like the digital recorders, the cost of accomplishing this is considerably more than the costs of the units which show accumulative totals.

### Value of Recorders

Recorders, whether digital or graphic, add considerably to the cost of batching equipment. Their greatest value lies in the fact that they make a record of the operations. Governmental agencies are specifying in increasing numbers that records shall be produced automatically of the weights of one or more of the materials used to produce concrete. These records are of value because (1) they furnish a true history of construction of the project, (2) they assist the inspector in his job of enforcing the specifications, since they show

(Continued on page 108)



He  
can't  
TALK...

(So we'll say it for him.) The ingenious new SMITH'S "Flo-Trol" design eliminates back-fire and prevents burned-out valve seats in Smith's oxy-acetylene cutting torches. It's fool-proof. You can't go wrong.

Write us a card —  
we'll give you the facts.

**SMITH WELDING EQUIPMENT  
CORPORATION**

2633 S. E. 4th St. Minneapolis, Minn.

## MORE RUGGED! NEW LUG-ALL WINCH HOIST

The trusty, husky LUG-ALL Winch Hoist is now more rugged than ever. Newly designed, job-tested models enable the LUG-ALL to meet new, even more challenging requirements.



### 1 1/2 TON CAPACITY

The feather weight LUG-ALL lifts, lowers, pulls, bends, stretches, or tightens up to 1 1/2 tons! LUG-ALL works easily around corners. It is truly the "vest pocket" hoist of 1,001 uses, such as:

- ✓ STRETCHING STEEL MAT FLOORS
- ✓ CONNECTING SLIP-JOINT PIPE
- ✓ PRE-TENSIONING STEEL RODS
- ✓ TIGHTENING CONVEYOR BELTS
- ✓ REPLACING CATS ON SHOVELS AND DOZERS

**WEIGHS ONLY 9 LBS.**

Newly designed aluminum frame protects ratchet teeth from rough surfaces. Has 133 strand, pre-formed, galvanized aircraft cable. Oiled-for-life bearings, too. Stainless steel springs. LUG-ALL Safety. Handle prevents overload. Your LUG-ALL is in factory tested before shipment and guaranteed for one year. Order today, or write for detailed literature.

Also available in rust-resistant, corrosion-resistant MARINE type models with stainless steel cable at slight additional cost—all parts salt spray tested.

MODEL  
#3000 HD

**\$35.25**

feb

**THE LUG-ALL COMPANY  
WYNNWOOD 8, PENNA.**



"No Equipment Failure...  
No Loss of Time...  
IN FIVE YEARS!"

"Haul 15 Tons 136 Miles Daily  
Without a Gas-Up Stop"

2 Years Old!...16,280 Hours!...No Repairs!  
...Oil Consumption Unchanged!

## Construction men report on equipment using Cities Service gasoline, oils, greases!

Above are excerpts of actual reports received from several different types of construction operations. They have been placed together on one page because they demonstrate very clearly that testimonials of unexcelled performance are the *usual* rather than the *unusual* when using Cities Service gasoline, oils, and greases. If there were room, many more could be added.

But no matter how many were added, they'd still tell the same story . . . a story of longer engine life, longer chassis life, fewer repairs, and far greater mileage and economy using the Cities Service line of highest quality petroleum products.

Whether you employ diesels or standard equipment . . . whether you use bulldozers, cranes, shovels, tractors, or heavy dump trucks, you'll find there's a Cities Service lubricant for every lubricating point on every piece of motorized equipment. Our job has been to make these lubricants . . . your job will prove they're better.

When you do business with Cities Service, it means you can buy everything from one source, save time in buying, and add dollars to your profit column. Try Cities Service one-source buying. Call your nearest Cities Service office or write Cities Service Oil Company, Sixty Wall Tower, New York 5, New York.



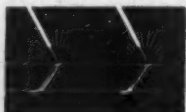
# GOOD...

## To the Last Drop of Water



For bringing in water, for getting rid of water, and for putting water to work on construction jobs, there's no better vehicle than Naylor light-weight pipe. The big difference between this and other light-weight pipe is in Naylor's exclusive lockseamed-spiralwelded structure which adds strength and safety without added weight. And this light weight makes for easier handling and easier installation—particularly with the one-piece Naylor Wedge-Lock coupling to speed connections and simplify the job. Why not look into this pipe and coupling combination? Ask for Bulletins No. 507 and No. 513.

**NAYLOR**



**PIPE**

**Naylor Pipe Company** • 1268 East 92nd Street, Chicago 19, Illinois  
Eastern U.S. and Foreign Sales Office: 350 Madison Avenue, New York 17, New York

### CONCRETE . . .

*Continued from page 106*

clearly any deviations from specified weights, (3) they furnish data which, at some future date, could conceivably be a valuable part of a research project, and (4) they furnish proof to legislative investigation bodies of the makeup of the concrete on a particular job.

• **Strain gages** have not been used in the concrete industry. Strain-gage units are still primarily a laboratory instrument. Great strides have been made by one or two companies in adapting them to industrial weighing. However, it is not believed that the development has reached the point where strain-gage units can compete with other devices under the severe conditions encountered in batching plants or because of the price situation.

### Dispatching Systems

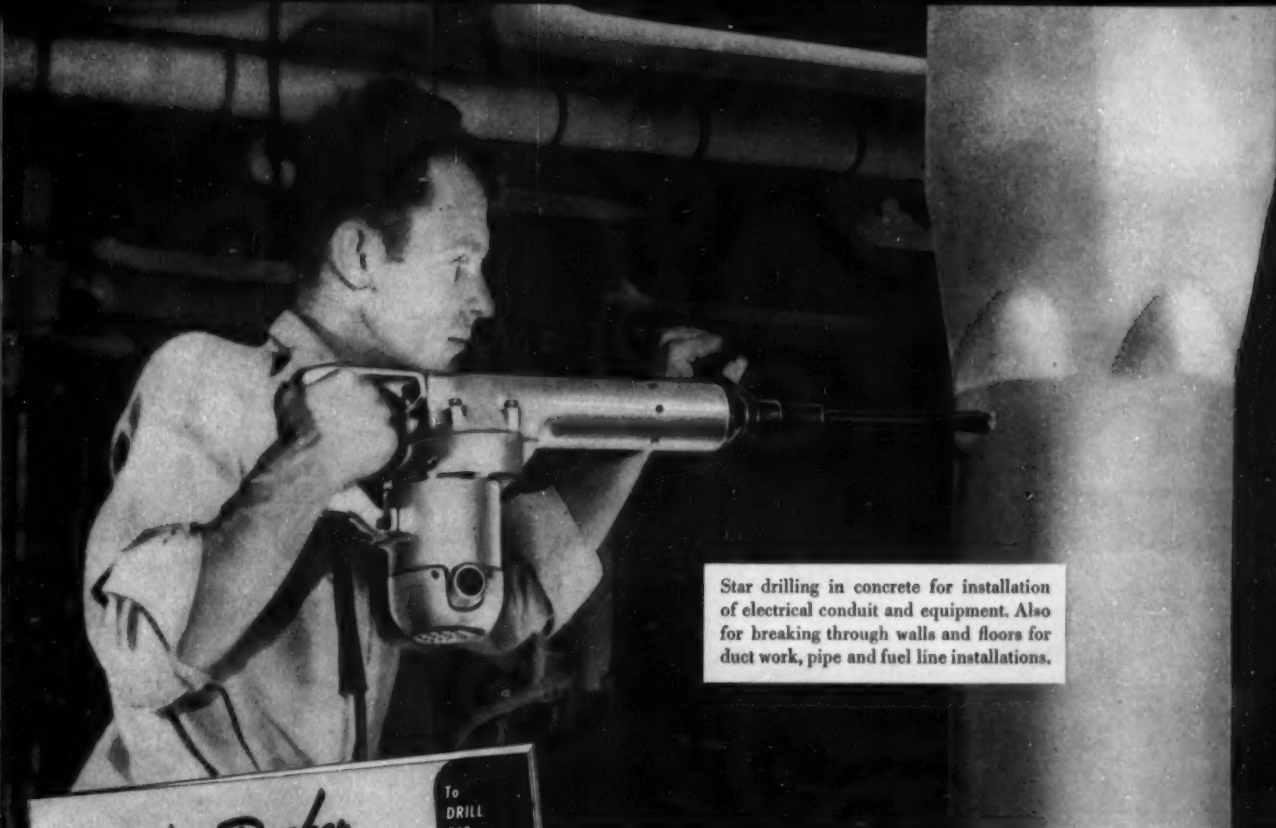
Let us assume a mixing plant equipped with single-material batchers and four mixers all discharging into a common hopper. Let us also assume that the operation is of such magnitude that it is not unusual to carry on pouring operations in more than one location. Under these conditions any one of as many as four mixes may have to be produced. It is not too much to expect that at any one moment the operator might have in mixer "A" mix No. 3, in mixer "B" mix No. 2, in mixer "C" mix No. 3, and at the same time be charging mixer "D" with mix No. 1.

It can readily be appreciated that it is a difficult job, unless adequate means are provided, to keep track of the various mixes and prevent their being sent to the wrong location. Fig. 4 (p. 112) shows such a means. It is a light panel which works automatically in conjunction with the mix selector system. Lights on the panel indicate which mix is in each mixer and also indicate the situation in regard to that mixer.

The panel has been set up so there is one vertical row of lights for each mixer, and all are marked by name plates. The top light marked "Chute" indicates the position of the swivel charging chute. Thus, were it directed toward mixer "A," the "Chute" light in the mixer "A" column would be illuminated.

The other lights indicate for their respective mixers: (2nd  
(Continued on page 112)





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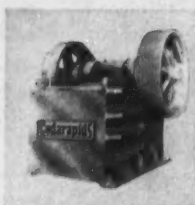


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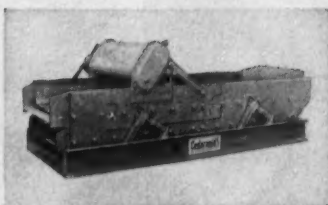
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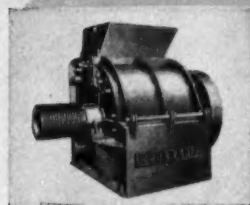
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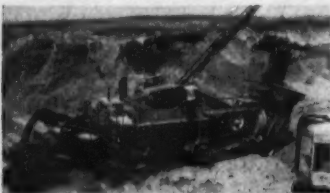
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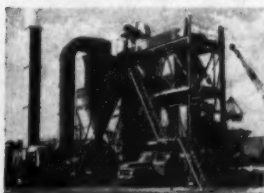
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## CONCRETE . . .

Continued from page 108

light), that the mixer is being charged; (3rd light), that the mixer is mixing the concrete and that the specified mixing time has not yet expired, (4th light), that the mixing time has expired and the mix is ready to be discharged, (5th light), that the mixer is discharging the mix, (6th light), that the mixer has been discharged, is righted, empty and ready to receive a new charge. Mix No. 1, through Mix No. 7 indicate the

(Continued on page 114)

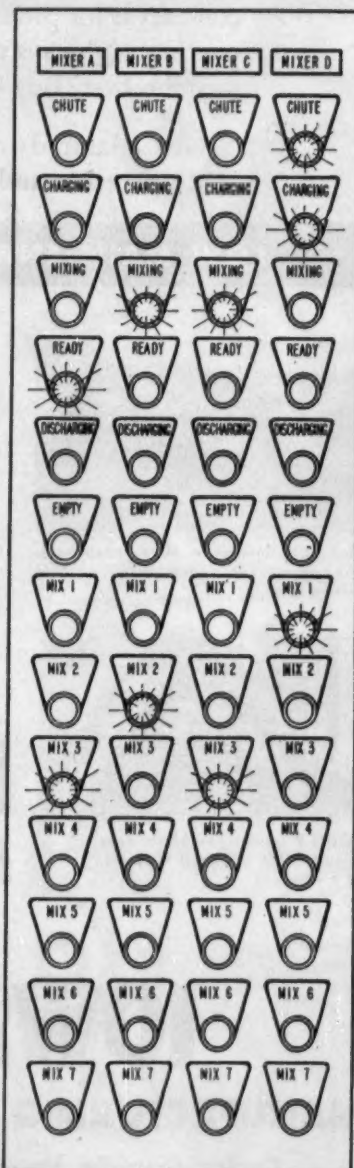


Fig. 4 . . . LIGHTS ON PANEL indicate which mix is in each mixer and the cycle situation in that mixer at all times.



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THREE VIBER MODEL PX external vibrators consolidate  $\frac{1}{2}$  to 1 inch slump concrete in 1 to 4 minutes. Table, shown tilted to vertical position for stripping, is capable of handling wall panels up to 39 feet, 6 inches long and 9 feet, 2 inches high.

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FAST, ECONOMICAL, and thorough consolidation of the concrete is accomplished by Viber PX pneumatic external vibrators located on the under side of the casting table. Three vibrators adequately handle the 40 foot table, requiring about 1 minute of operation for 6 inch slabs, and 4 minutes for 3 inch slabs. Steel casting tables under vibration assure smooth concrete.

- The casting table is used in a similar manner for beams and columns, requiring approximately 2 or 3 minutes of vibration. Only the top is troweled, other surfaces need no troweling.

- When removing a panel, the casting table is tilted, placing the panel in vertical position for stripping. Throughout the curing process and all loading operations, panels are handled vertically, avoiding stresses that would be created by lifting from the horizontal position.

- Basalt Rock Company, Inc., Napa, California, has had many years experience in the manufacture of lightweight concrete products and are leaders in the field of factory assembled pre-cast concrete wall panels, roof slabs, beams and columns.



TABLE, shown here with forms for three beams, is also used for casting beams and columns. Note test samples which are vibrated at the same time.

For further information on Viber's complete line of internal and external vibrators, contact your authorized distributor or Viber Company, 726 South Flower Street, Burbank, Calif., Dept. 68.



CONCRETE VIBRATORS SINCE 1931

### CONCRETE . . .

Continued from page 112

mix number in the mixer. One of these lights will be lit during the "Charging," "Mixing" and "Ready to Discharge" conditions of the mixer.

Such a dispatcher's panel must be wholly automatic. The proper mix number light for any one mixer will be established by the position of the mix selector knob at the time of charging the mixer. Since it is likely that in servicing the next mixer a different mix will be used, it is necessary to preserve or "remember" the mix number in mixer "A," for example, by means of a holding relay. Additional panels with similar lights can be installed at other locations without duplicating all the complex switching and circuitry.

It is customary to tag buckets of concrete when they leave the plant to indicate the mix number they contain. This means that there must be a man on the concrete train who will receive the information from the operator on the batching floor above. This information can be conveyed to him either orally through a call system or with a special light panel. The proper lamp to indicate the type of mix in the gob hopper will be selected by the batch-plant operator after consulting his light panel. By pressing a push button the operator will light one of the mix lights which remains lit until cleared by the "tag man" on the train below.

Various other means have been used effectively. The important thing to remember is that it is unwise to rely on the operator's memory, or to require him to keep track of the concrete by checking on a tally sheet. Some simpler arrangement must be adopted.

### Cooling Concrete Materials

The temperature of freshly poured concrete rises due to the heat of hydration. In thin slabs or thin walls temperatures seldom rise much above the surrounding temperature because the mass of concrete is not great and the heat of hydration is readily dissipated.

But when we visualize the usual 5-ft lift in a block of a large dam, we begin to appreciate that the amount of heat released by the hydration of cement is multiplied many-fold because of the great quantity of concrete involved. It also is quite likely that heat is

(Continued on page 117)



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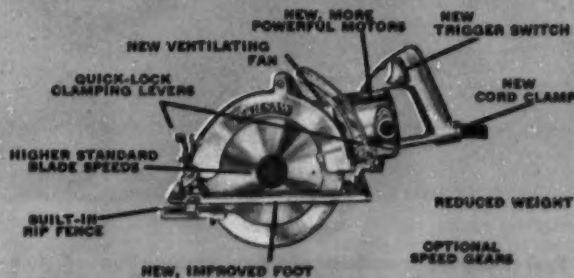
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## CONCRETE...

Continued from page 114

generated more rapidly than it can be dissipated so that there may be a considerable rise in temperature. The rate will be quite rapid at first.

As time passes and as the temperature within the center of the mass approaches its "final" temperature, the rate of dissipation will decrease materially. With a reduction in temperature of the concrete mass there comes a contraction or reduction in volume. The shrinkage in the interior of the block is likely to set up tensile stresses which will be relieved by hairline cracks throughout the concrete mass.

A large drop in temperature from the maximum to the final would result in considerably more shrinkage than were the decrease in temperature of a much lesser magnitude.

## Controlling Temperature

With this in mind, specifications for certain jobs call for a maximum temperature of concrete placed in a dam during hot weather. Assume that we have a block of concrete to be poured of such size and shape that we may expect a temperature rise of approximately 50 deg. F. If the concrete has an initial temperature of 70 deg, and the final temperature for the block eventually will be 70 deg, the temperature of the concrete at the center of the block will rise to 120 deg and then slowly cool off to 70 deg, with the shrinkage attendant to a 50-deg temperature drop.

Let us, instead, cool the materials so that the concrete will have a temperature of 40 deg. The 50 deg temperature rise will give us a maximum temperature of 90 deg, which means that we will have a temperature drop of only 20 deg from the maximum to the final. Shrinkage of the concrete will be considerably less.

The above may be over-simplification, but it is not within the scope of this article to present a detailed analysis of the need of cooling concrete materials.

Efforts to reduce the temperature of fresh concrete have included the batching of chilled mix water and the batching of ice. On several projects as much as 70 to 90% of the total amount of mix water was charged into the mixer in the form of ice. The ice must be

## it's what's inside that counts



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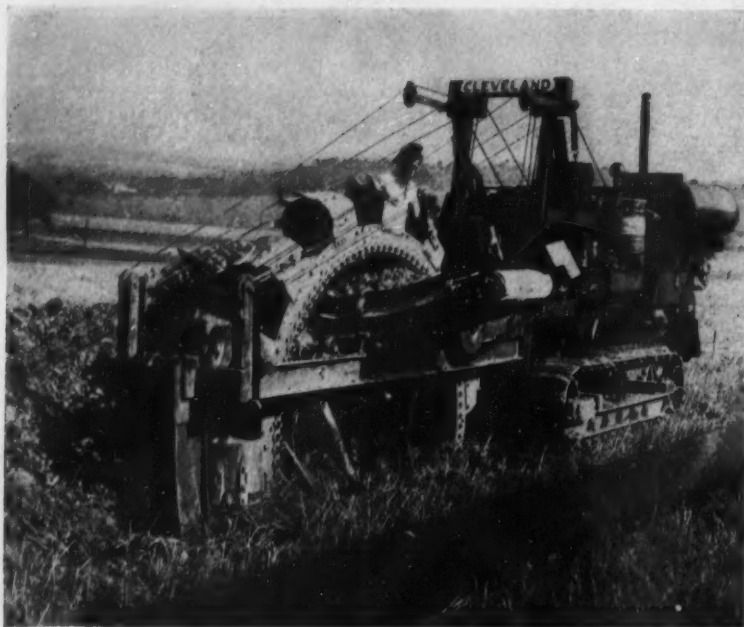
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### CONCRETE . . . Continued

in a form to melt almost instantaneously on contact with the other materials.

Ice can be handled readily with conventional material-handling equipment such as screw conveyors, bucket elevators and belt conveyors, provided certain precautions are followed. Chief among these is that the temperature of the ice must be kept below 28 deg. F. and it would be wise to keep the temperature below 26 deg. Material-handling facilities used to transport ice must be insulated effectively and in many cases equipped with cooling coils or other means to hold the equipment at a low temperature.

### Aggregate Immersion

Several jobs have been constructed of concrete held to a low temperature by immersing aggregates in cold water. The materials must be immersed in the water for a considerable period of time in order to insure that the heat within the center of the particle has had ample time to be transferred or dissipated to the surface, and thence to the cold water. The chilled water must be constantly circulated through the aggregate because the heat given up by the aggregate must be removed.

The aggregates must be drawn off or reclaimed and, if the system is to be effective, must be drained without gaining too much heat from the surrounding atmosphere. All of these conditions present problems which are not readily solved, or the solution involves either the expenditure of a considerable sum for facilities or the expenditure of large sums of money for operation, or both. The cost of cooling concrete materials comes high.

### Cooling Problems

The major objection to the cooling of aggregates by immersion is that controlling of their moisture content is quite difficult. Sand presents a particularly difficult problem.

Cooling of aggregates by passing chilled air through the aggregate storage bin has proved successful on several recent jobs. Briefly, this requires a refrigeration plant adjacent to the concrete mixing plant and other auxiliary equipment. Chief among this auxiliary equipment is a large fan which forces the air through cooling coils. The air is then conducted to the

*(Continued on page 121)*

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Bin-batching costs drop fast when mixing plants load hoppers with high-lift, long reach, fast-moving MM Wheeler-Loader units.

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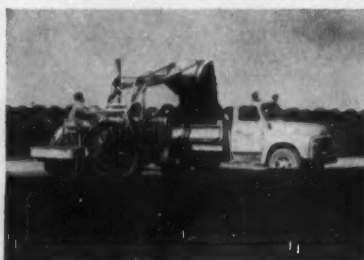
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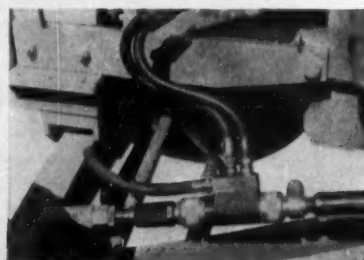
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Minneapolis 1, Minnesota



Owner of this St. Paul, Minn., mixing plant replaced two loader outfits with this MM Wheeler-Loader unit, loads bins for less.



Wheeler maneuverability plus good bucket control speeds up surface mixing operations. Shuttle gearing splits loads in half the time.



UTIL Wheelers available with hydraulic POWER-flow steering for maximum operating ease. Built-in safety features insure constant control.



## CONCRETE . . .

Continued from page 118

bin in large insulated corrugated steel ducts, passes up through the materials in the bin, is drawn off the top of the bin and returned to the low-pressure side of the fan chamber by additional large metal ducts.

Cooling of sand by air has not been successful. Because of the great resistance against the passage of air through sand, an effective and economical arrangement has yet to be worked out. This means that the other materials must be cooled beyond the point required were it possible similarly to reduce the temperature of the sand.

Cement, too, presents quite a problem, for it, of all of the materials, can be expected to be delivered to the batching plant at a temperature considerably in excess of other concrete materials.

Cement can be cooled effectively with special cement coolers which essentially are special screw-type conveyors through which the cement is passed back and forth and which have a jacketed shell and special flights through which are pumped cold brine. Even with this elaborate equipment, it is difficult to cool the cement. The cost of cooling cement is a major expense as far as equipment purchase is concerned.

### Foreign Mass Concrete Plants

In most areas outside of the U. S. and Canada there is a different relationship between the cost of materials and labor. This has a marked effect upon the type of operations to be expected in construction. In Canada, construction is carried forward with the same type of equipment and in much the same way. The author has been impressed by two rather unexpected differences: (1) The Canadians apparently are able to carry on concreting operations in winter, in weather which normally imposes a halt on many operations in the U. S.; (2) the usual 5-ft, 7½- or 10-ft limitation placed on the "lift" is not binding in Canada. Fifty-foot lifts have been used there.

In Europe, notably France, Switzerland and Austria, some of the larger projects have been constructed, using plants of American design. In this respect much that has been said concerning mass concrete plants here will pertain to these European plants. Elsewhere

(Continued on page 124)

## HERE'S THE NEW White



### TROWELER WITH EXCLUSIVE RETRACTABLE WHEEL\*

Model T-1  
White troweler,  
36" ring. \*Patent  
No. 2,621,568.

**WHEEL UP TO TROWEL**—Blade pitch control and safety throttle on handle. Blades stop and engine idles if operator lets go of machine. Blade pitch adjustable during rotation.

**WHEEL DOWN TO MOVE**—One man easily wheels White troweler from slab to slab or to truck—an exclusive White feature.

**TEN SECONDS**—To remove ring and wheel machine through narrow doorway; or to clean or change blades.

**SIXTY SECONDS**—To completely disassemble power unit, ring, blades and handle.

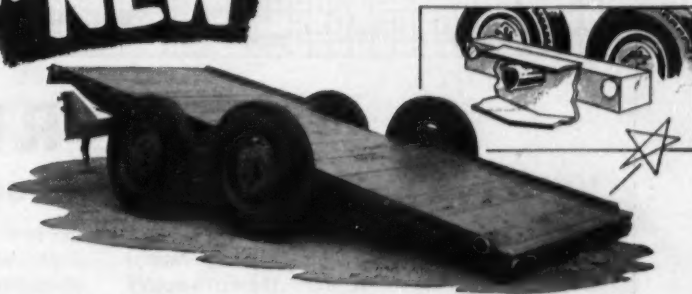
#### SEE IT... TRY IT... COMPARE IT!

Write for full information and name of nearest dealer.

WHITE MANUFACTURING COMPANY, ELKHART O, IND.

announcing...  
the **NEW**

## all new, tandem axle MILLER 10 Ton Tilt-Top!



A completely new, heavy duty Tilt-Top\* designed and built by engineers who pioneered the development of the easier loading Tilt-Top\* for hauling heavy equipment.

This new Tilt-Top is massively built from platform's rear edge to the gooseneck at the tongue. Chassis employs a heavy duty version of field proven MILLER tapered side channel design.

And this big Tilt-Top is so precisely balanced that one man can lift it effortlessly for hitching.

Big oak platform (76" x 16') handles rollers up to 10 Tons... such big tractors as the D-4 and HD-5. See this NEW Tilt-Top\* at your MILLER distributor today.

Heavy box section walking beam gives rugged strength and independent wheel action on each side, assuring less jarring and level ride over rough terrain.

Model "BT-10" 10 ton \$2100.00\*  
Complete with platform, four 8.25 x 20 x 12 ply tires, heavy duty electric brakes, reflectors, lights and safety chains.

\* Plus freight and federal tax

**MILLER**  
research engineers



457 S. 92nd Street, Milwaukee 14, Wis.

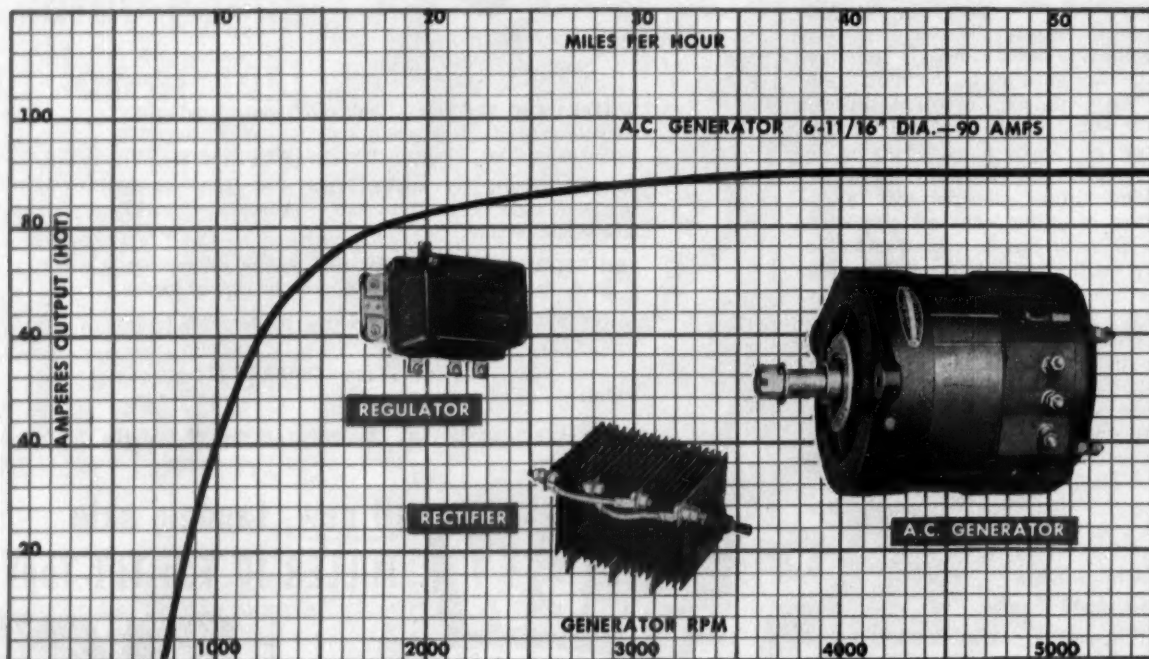
#### MAIL TODAY

Name	_____
Company	_____
Street	_____
Town	_____ State _____

# Power Packed and



HERE'S THE A.C. ANSWER TO  
EXTRA-HEAVY ELECTRICAL DEMANDS



## DELCO-REMY

### A. C. Generator, Regulator and Rectifier

Here's the answer for "problem" vehicles—Delco-Remy's new long-lived A.C.-D.C. charging system! It's specifically designed to meet the *extra-heavy* electrical demands of contractors' trucks and other vehicles equipped with two-way radio, floodlights or any extra electrical units . . . ample current reserve picks up discharged battery quickly in operation. Delco-Remy A.C. generators are suitable for use at all engine speeds.

With output ranging from 30-40 amperes at curb idle and up to 90 amperes at higher engine speeds,

the new Delco-Remy A.C.-D.C. charging system meets all electrical needs under the toughest operating conditions. Included in the new system is the A.C. generator, a matching regulator, and a rugged, dependable dry-plate rectifier which converts generator A.C. output to direct current.

Application packages complete with installation instruction sheets for popular makes of cars and trucks are now available. The conversion job is simple. For further details and application data, see your nearest United Motors distributor.

A GENERAL MOTORS PRODUCT  A UNITED MOTORS LINE

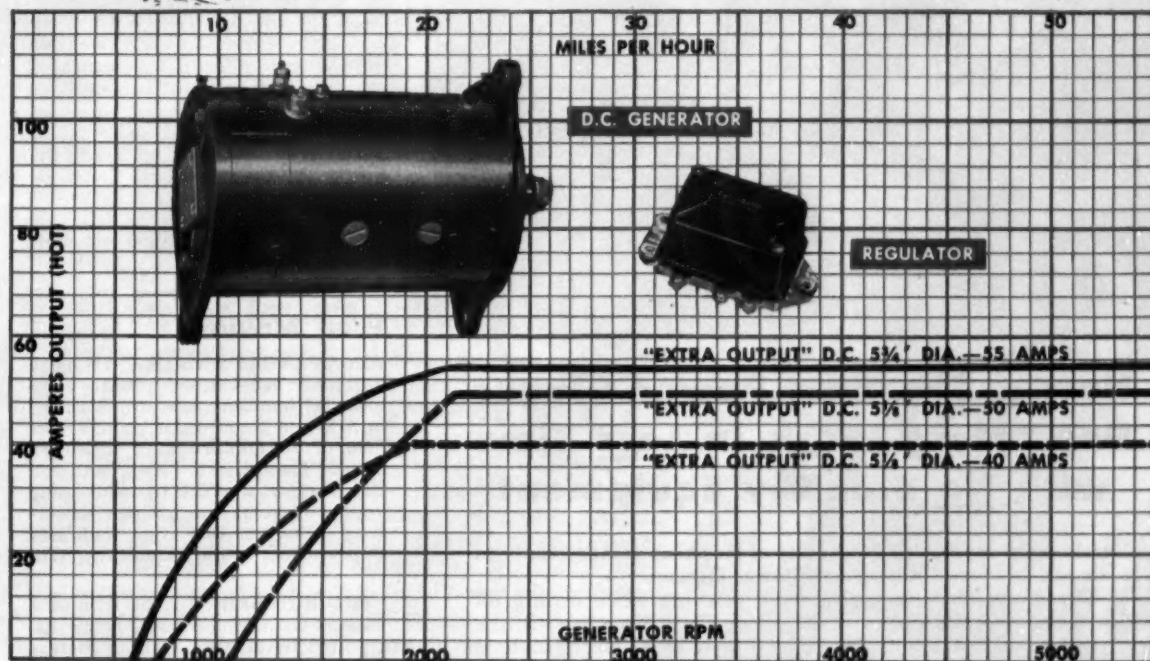
DISTRIBUTED BY WHOLESALERS EVERYWHERE

WHEREVER WHEELS TURN OR PROPELLERS SPIN

# Right for the Job



HERE'S THE D.C. ANSWER TO  
HEAVY ELECTRICAL DEMANDS



## DELCO-REMY

### Extra-Output D. C. Generators and Matching Regulators

Delco-Remy extra-output D.C. generators are an economical answer to the electrical needs of contractors' pickup or panel trucks as well as other vehicles with additional lights, two-way radios, or other special electrical equipment in medium to heavy-duty service. Delco-Remy extra-output D.C. generators are low in cost, simple to install, economical to maintain.

DELCO-REMY 40-AMP GENERATOR has low cut-in, about 7 mph, charges from 11 to 17 amperes at curb idle . . . full output about 18 mph—for vehicles customarily used in heavy traffic.

DELCO-REMY 50-AMP GENERATOR has slightly higher cut-in, about 11 mph . . . full output about 21 mph—for vehicles customarily operated at higher speeds, with minimum slow driving.

DELCO-REMY 55-AMP GENERATOR has very low cut-in, about 6 mph; charges at curb idle from 20 to 30 amperes . . . attains full output at 20 to 25 mph—for vehicles customarily operated at low speeds with added electrical loads, such as contractors' field cars.

For further details and application data, see your nearest United Motors distributor.

## Delco-Remy

DIVISION, GENERAL MOTORS CORPORATION, ANDERSON, INDIANA

WHEREVER WHEELS TURN OR PROPELLERS SPIN





## How a Sherman Power Digger Does More Work in Less Time with No Standby Equipment

Nearly every department in the city of Hopkins, Minnesota, finds a use for this versatile Sherman Power Digger.

The Water Department uses the machine when cutting off discontinued service lines at the main. They dig a hole in the street (usually blacktop) 3' wide by 6' long by 8' deep. The hole must be plumbwalled for minimum replacement of paving. This operation used to tie up a truck all day, an air compressor half a day, and two men with hand tools, a full day.

Using a Sherman Power Digger, they now do *three* such jobs in one day, with only one man on the digger, no truck, and no compressor, except for concrete pavement. The job goes faster because they can dig the hole, shut off the line, and backfill before the walls begin to cave. Local soil conditions formerly required cribbing many of these excavations.

If *your* work involves the construction or maintenance of underground facilities, you will profit with a Sherman Power Digger. It's compact, fast, and flexible, with low initial cost and amazing economy of operation. Write today for full details, without obligation. Ask for Bulletin No. U-57.

Designed, Engineered and  
Manufactured Jointly by  
**SHERMAN PRODUCTS, Inc.**  
Royal Oak, Michigan  
**WAIN-ROY CORPORATION**  
Hubbardston, Mass.

Patent No. 2,303,852  
Other patents pending

© SHERMAN PRODUCTS INC., 1954



## CONCRETE . . .

Continued from page 121

large batch plants have mostly been of American design.

## Things to Come

When one writes of American construction methods and equipment, it is almost folly to attempt to predict that which will come to pass. Knowing this full well, it seems likely that the next 5 to 10 years will bring about rather remarkable changes in the equipment for the batching of concrete materials. There is a great need for improvement, for more accuracy, for less delicate instrumentation, so that the producers of concrete can turn out a better product at lower cost.

\* \* \*

The tenth article of this series will appear in the October issue.

## Free Movies

**EXCAVATORS AND CRANES** on 30 different excavating, loading and material handling jobs are featured in a 16mm sound-color motion picture of 25 min. running time. It's called "These Users' Views," and you can borrow a print by addressing your request on your company letterhead.—Bucyrus-Erie Co., Publicity Department, South Milwaukee, Wis.

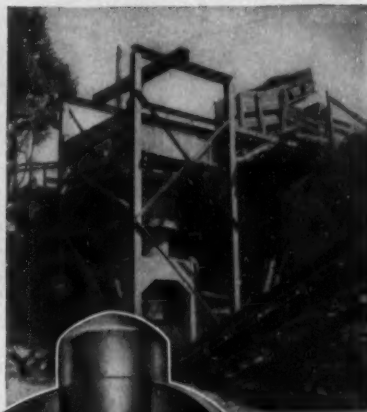
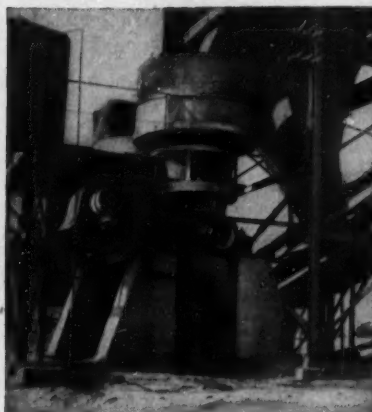
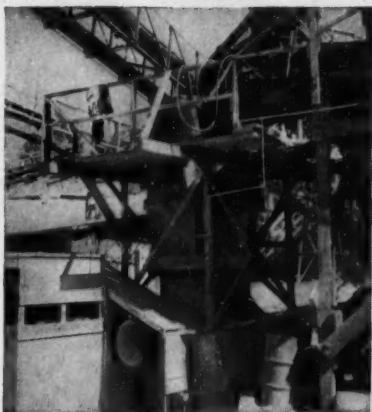
"**THE BUILDERS**" is the title of a 31-min. sound color movie being distributed by **Modern Talking Picture Service Inc., 45 Rockefeller Plaza, N. Y.** Sponsor for the film is Wire Reinforcement Institute, Inc., National Press Building, Washington 4, D. C. The movie has a pretty good plot behind the story of how some of the marvels of modern construction were brought about. You can get this one on loan by paying transportation charges.

**A NEW FILM** on drilling and blasting operations in an underground limestone quarry has been released by **Gardner-Denver Co. of Quincy, Ill.** An interesting sequence of this movie is an actual blasting scene in brilliant color and quite a bit of sound of an underground operation. Running time is 23 min.

**A COLOR STRIP FILM** showing applications, construction and design features of the rear-dump Athey PR-21 is available for showing to contractors, miners and quarrymen. Copies may be obtained from any Athey-Caterpillar dealer or by writing directly to **Athey Products Corp., 5631 W. 65th St., Chicago, Ill.**

806 OWNERS OF TRAYLOR TY REDUCTION CRUSHERS SAY

# Production is the Payoff...

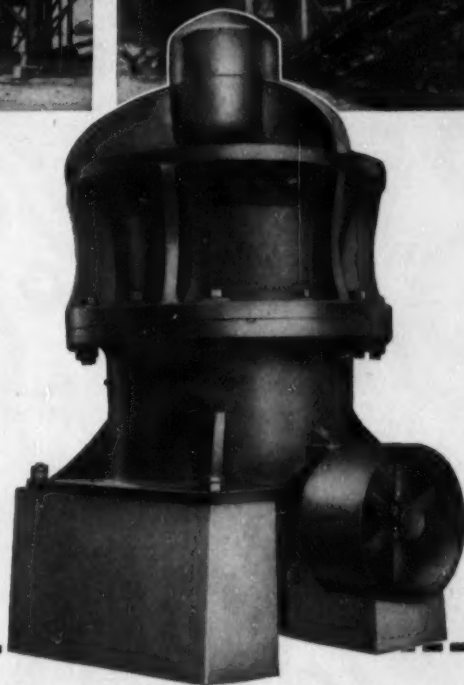


## Greater Tonnage... Greater Profits

**THE EXCLUSIVE** Traylor design features and extra-heavy construction of a TY Reduction Crusher increase your production tonnage by reducing maintenance down-time and boosting hourly out-put with fewer waste fines.

Traylor TY's original, self-tightening bell head and curved concaves apply crushing power with greater efficiency. Increased capacity of each succeeding zone in the crushing chamber permits fine settings to produce greater tonnages with reduced power requirements.

Type TY Traylor Reduction Crushers are of compact design . . . incorporating maximum strength with simplified operation. Six sizes with feed openings from 3" to 22". Send for free bulletin 7112.



# Traylor TY REDUCTION CRUSHERS

**TRAYLOR ENGINEERING & MANUFACTURING CO.**  
687 MILL ST., ALLENTOWN, PA.

Send me Bulletin 7112 with complete description, illustrations and specifications on Traylor TY Reduction Crushers.

Name: \_\_\_\_\_

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Company: \_\_\_\_\_

Address: \_\_\_\_\_ State: \_\_\_\_\_

Sales Offices: New York • Chicago • San Francisco  
Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P.Q.



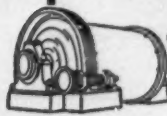
Primary Gyratory Crushers



Rotary Kilns



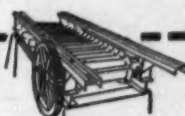
Secondary Gyratory Crushers



Ball Mills



Jaw Crushers



Apron Feeders







The Davis  
**Pit Bull**  
Patent Pending

# 11 Attachments .. to 1 Basic Unit

**CUT INVENTORY—  
LABOR—MAINTENANCE!**

the **PIT-BULL...**

- MOUNTS ON REAR OF FERGUSON OR FORD TRACTOR.
- HAS FOUR SPEEDS EACH DIRECTION AND INSTANT REVERSING.
- PERMITS CLEAR VISION AND PERFECT CONTROL.
- ATTACHMENTS ARE EASY TO CHANGE.

Replace your high-cost equipment with the high-quality yet economical Davis **Pit-Bull**. Only one basic unit...but several easy-to-change attachments set you up to handle a multitude of jobs without a big investment in equipment and payroll. The **Pit-Bull** is strictly a one-man machine that can be used to load...dig...sweep or to do many other jobs with a minimum of time spent changing attachments. You buy only the attachments you need.

The **Pit-Bull** turns your Ferguson or Ford tractor into a powerful industrial unit. A synchro-mesh transmission with underdrive is installed by the dealer to give you four speeds in either direction and to allow you to change without shifting gears.

A reversal in the seating and steering controls, plus installation of finger-tip **Pit-Bull** controls, permits the operator to be comfortable and maintain complete control of both the tractor and the **Pit-Bull** simultaneously. The **Pit-Bull** gives greater versatility, maneuverability, visibility and performance at only a fraction of the cost of conventional equipment.

Ask your dealer for a demonstration or write for details.

The Davis **PIT-BULL** is manufactured by the makers of the Davis Model 100 Loader, America's Quality, Front-End Tractor Loader.



Back-Hoe



Rotary Broom



Rotary Mower



Fork Lift



Trencher



Dozer



Post Auger



Hammer



Swinging Crane



Cab Attachment



Model 100 Loader

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WICHITA, KANSAS

PB-4

Send me literature on the Pit-Bull ☐ I would also like literature on the DAVIS Model 100 Loader to fit a \_\_\_\_\_ tractor.

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**MID-WESTERN INDUSTRIES, INC.**

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**CLYDE'S**  
*design features*  
*results in*  
*trouble-free*  
*operation for*  
*over four years!*



"Well pleased with the trouble-free, dependable operation of the Clyde hoist," says J. L. Cartwright, hoist operator for J. W. Bateson Company, Inc. of Dallas, Texas.

42 Story Republic Bank Building, Dallas, 6 floors underground, is of steel frame construction with all aluminum covering, no masonry. A 8,000 lb. line pull Clyde hoist handled all kinds of building material on this job. Hoist has been in continuous service for over four years, including other jobs such as the Corrigan Tower and Gibraltar Life Insurance Building also in Dallas.

Consider the many outstanding advantages of Clyde Band Friction Hoists and you'll readily understand why they're the favorite of contractors and operators. Cool running, long wearing frictions give smooth and positive engagement eliminating shock loads on hoist or cable. Large diameter, efficient brakes assure safe and accurate load control at all times. Anti-friction bearings throughout permit higher operating speeds, reduce maintenance costs and result in greater line pulls with less power consumption. Husky pawls, that nestle into deep pocket ratchets lock in or out of engagement for additional safety. Fatigue-free operation with either manual or air operated brakes and clutches.

For complete information on other Clyde Hoist advantages—Write Today.



HOISTS-DERRICKS-WHIRLEYS-BUILDERS TOWERS-CAR PULLERS-HANDI-CRANES-ROLLERS

**CLYDE IRON WORKS, INC.**

Established in 1899

**DULUTH, MINNESOTA**

Subsidiary of Barium Steel Corp.



# now—

## a 4-WHEEL DRIVE

**Excavator-Loader with**

*plus* features for  
*plus* performance

# TRACTOMOTIVE

# TL-12

# TRACTO-LOADER

Weight: 12,000 lb.

Bucket Capacity: 1 cu. yd.

Speeds — 4 forward, to 20 mph . . . 4 reverse, to 25 mph

Brake Hp. — 63



**MODEL TL-10** for all types of bulk material handling . . . with short, 11-ft. turning radius, torque converter drive, clutch-type transmission and Allis-Chalmers POWER-CRATER engine.  $\frac{3}{4}$  cu. yd. bucket, weight 11,400 lb., 63 brake hp.

See your nearest Allis-Chalmers  
Industrial Tractor Dealer

**4-WHEEL DRIVE** for excellent traction — excavating or loading — even under adverse ground conditions . . .

**PLUS HYDRAULIC TORQUE CONVERTER DRIVE** for smoother, faster operation. No ramming or clutching, no engine stalling . . . easier maneuvering, snappy bucket action!

**PLUS CLUTCH-TYPE TRANSMISSION** Eliminates most shifting. Operator simply pushes a lever to go forward, pulls it back for reverse. He can work all day without shifting gears on short-haul jobs!

**PLUS REAR-WHEEL POWER STEERING** This advantage together with all-wheel drive means easy steering and maneuvering under all operating conditions.

**PLUS NEW, DYNAMIC ALLIS-CHALMERS POWER-CRATER ENGINE** Gives you high-octane performance on regular gasoline.

Yes, here's 4-wheel drive **PLUS . . .**  
**PLUS** all the advantages Tractomotive offers you in its famous TL-10 Tracto-Loader — the outstanding performer on bulk material handling. Choose the model that fits your needs.

**Wire, write or call for a demonstration NOW!**

POWER-CRATER is an  
Allis-Chalmers trademark



# TRACTOMOTIVE

TRACTOMOTIVE CORPORATION, DEERFIELD, ILLINOIS

Tracto-Loaders • Tracto-Shovels, Side Booms and Hydraulic Rippers  
for Allis-Chalmers Crawler Tractors • Loader and Shoulder  
Maintainer for Allis-Chalmers "D" Motor Grader



## Handy Data for Steel Strapping

STEEL STRAPPING				RECTANGULAR SHAPES			ROUND SHAPES		
WIDTH	THICKNESS	AV. YIELD POINT	AV. FRACTURE LOAD	SEAL	STRETCHER	SEALER	SEAL	STRETCHER	SEALER
3/4" #313	.030"	1,000#	1,400#	204	101	502	204	101	502
3/4" #701	.035"	1,900#	2,800#	804	601	610	801	602	620
1 1/4" #702	.035"	3,200#	4,800#	803	603	670	802	602	621
2" #704	.050"	7,000#	11,000#	806	604	612	806	604	612

ing rods with a crawler crane.

Kunkler found 1 1/4 x .035 Bulk-binder strapping and tension tools manufactured by A. J. Gerrard & Co. of Melrose Park, Ill., ideal for this type of formwork.

He stated that, when using clamp methods it would normally have taken about 4 hr to erect three columns of falsework, but with strapping, the same work was done in 1 hr. He also found that strapping could be placed much closer together than with clamps which helped eliminate the bulge or spread problems and wave effects on the finished columns. Further

economies were effected by salvaging the strapping as falsework was removed with the loss of only 18 in. per strap.

No special labor was needed for this method as the same workers who had applied clamps on previous jobs were able to strap with equal ease.

## Paul Bunyan Icebox

In the towering Snowy Mountains Electric Scheme in Australia, engineers are constructing a big icebox. In one deep valley rock

paves one side, but on the other side is moraine—rubble left by a glacier more than 20,000 yr ago. To seal the moraine with concrete to prevent seepage would prove too costly. Engineers on the project plan to bore a network of holes in the area, measuring 500 ft high and 300 yd across, and pump tons of refrigerated brine into the openings, freezing a solid wall beneath the surface. For ten months of the year the wall will stay put without any special attention, but for two summer months the engineers will pump down more brine to keep the wall frozen.

**70% Of the structures on the OHIO TURNPIKE**

**Are being built with the aid of**

**Maginniss HI-LECTRIC CONCRETE VIBRATOR**

On the structures for this major twin-lane super-highway, more MAGINNISS HI-LECTRIC VIBRATORS are in use than all other makes combined.

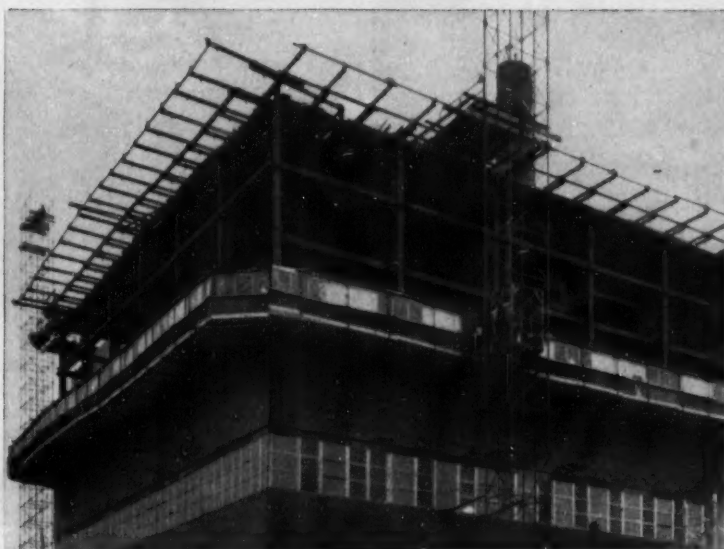
They are the choice of 19 different contractors; are saving labor and maintenance costs on 43 of the 62 sections. To learn the reason for their fast increasing popularity

CONTACT YOUR LOCAL HI-LECTRIC DISTRIBUTOR FOR DEMONSTRATION OR WRITE

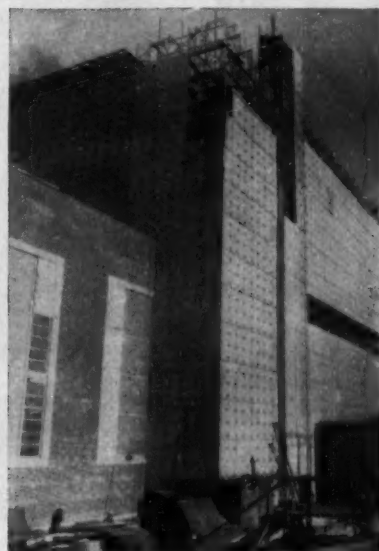
**Maginniss POWER TOOL CO.**  
Mansfield, Ohio

## Scaffolding Methods

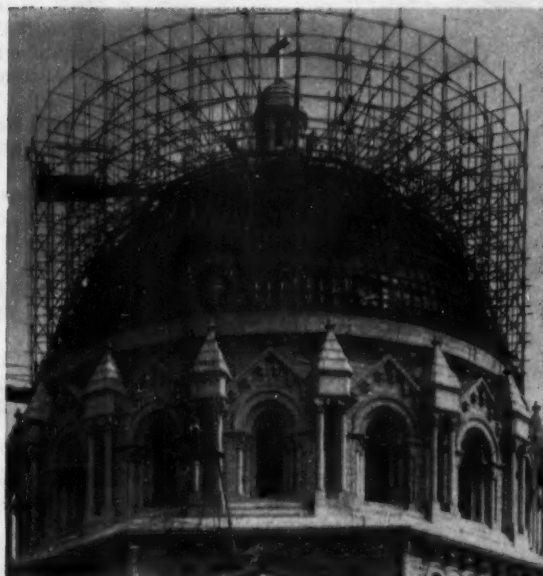
... by PS Co.



**UNDER-COVER WORK**—Wintertime construction on this power plant in Romeo, Ill., advances on schedule because "Gold Medal" Safety Scaffolding Machines are completely enclosed to protect masons from freezing weather. "Gold Medal" Scaffolding Machines, supplied by PS Co., are quickly enclosed and heated for warm, weather-tight protection. Plastic enclosures, attached to these scaffolds, not only foil winter cold, but also admit ample light to the entire platform work area. Ragnar Benson, Inc., is the general contractor.



**WINTER OVERCOAT**—Fall enclosure of the building framework enabled all tradesmen to work through the winter on this Electro-Motive Corp. building in Ashtabula, Ohio. General contractor Walsh Construction Co. used "Trouble Saver" Sectional Scaffolding on entire exterior of 11-story framework, then covered scaffold with 10'x12' homosote panels.



**CROWN OF STEEL**—A cantilevered self-supporting "TubeLox" Steel Scaffold supplied by PS Co. girdles the 10,000 sq. ft. dome of St. Louis Cathedral, providing safe support for roofing crews. According to roofing contractor Otto C. P. Berger, this "TubeLox" Scaffold cut labor costs 25% and saved 20% on materials.

To help you solve any scaffolding problem, PS offers a complete nation-wide engineering service—available locally. See the Yellow Pages in your 'phone book for the nearest Patent Scaffolding office or representative handling "Gold Medal" Scaffolds.



**HOME FOR "DRAGNET"**—"TubeLox" Scaffolding had a strong supporting role in construction of this new building for the Los Angeles police force made famous by TV's "Dragnet". A steel web of 71,000 lin. ft. of "TubeLox" supports tile setters' platforms laid flush to wall of this 8-story Police Facilities Building. Joint venturers are Ford J. Twatts Co. and Morrison-Knudsen Co., Inc.

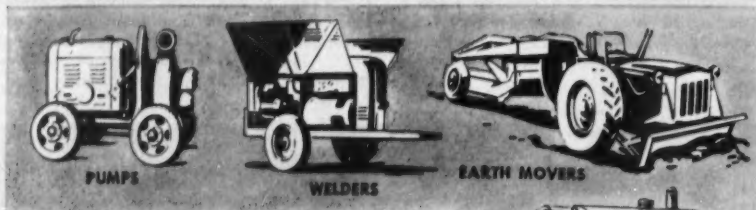
FOR GREATER SAFETY...EFFICIENCY...ECONOMY

 **THE PATENT SCAFFOLDING CO., Inc.**

38-21 12th Street, Dept. CM&E, Long Island City 1, N. Y.  
6931 Stanford Ave., Los Angeles 1, Calif.  
Branches in all principal cities



Ingersoll-Rand GR-105 compressor, operating back-fill tamper. Power—Continental Red Seal F-162.

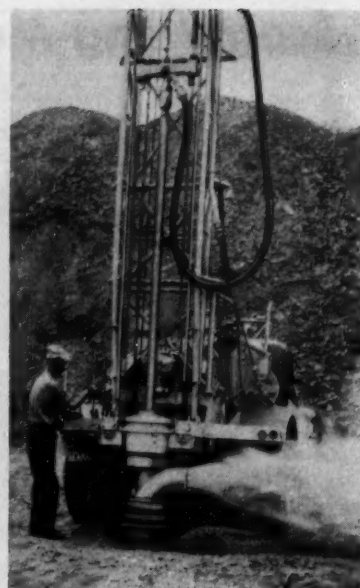


Continental Red Seal power for specialized applications is now available at levels ranging from 2 hp up to more than 1,000, in liquid-cooled and air-cooled models, for use on all standard fuels. And, strictly on the score of performance—economy, dependability and low maintenance cost—it is finding its way into more and more leading makes of specialized machines. The equipment builder's good name, and the end-user's satisfaction, are double-clinched by this fact: **EVERY CONTINENTAL RED SEAL IS NOT ONLY BUILT FOR ITS JOB, BUT BACKED BY PARTS AND SERVICE FACILITIES COAST TO COAST.**



1819 BROADWAY, NEW YORK 23, NEW YORK • 3617 S. SANTA FE AVE., LOS ANGELES 58, CALIF.  
6218 CEDAR SPRINGS ROAD, DALLAS 9, TEXAS • 910 S. BOSTON ST., ROOM 1008, TULSA, OKLA.  
1252 OAKLEIGH DRIVE, EAST POINT (ATLANTA) GA.

**Continental Motors Corporation**  
MUSKEGON, MICHIGAN



## Air-Blast Drilling

A NEW ROTARY AIR DRILL, the model M-8A, announced by Davey Compressor Co., Kent, Ohio, employs a new "air blast" technique which is said to enable it to drill shot and blast holes, core, structure testing and water well drilling, faster and more economically than any other types of rotary drills.

The use of air as the circulatory medium helps make greater speed due to the high uphole velocity of the cuttings. Bit life is increased also, since the bottom of the hole is cleaner and reasonably free of abrasive bit wearing cuttings.

Another advantage claimed for the new drill is that no water supply is needed.

Rated capacity of the drilling machine is 5 1/4-in. holes to a depth of 150 ft with air and 6 1/4-in. holes to 1,000 ft with mud.

The drill may be driven by a power take-off from truck engine or by a separate gasoline or diesel engine.

Air compressor used with this machine is a Davey model X300 or X400, rated at 400 and 500 cfm.

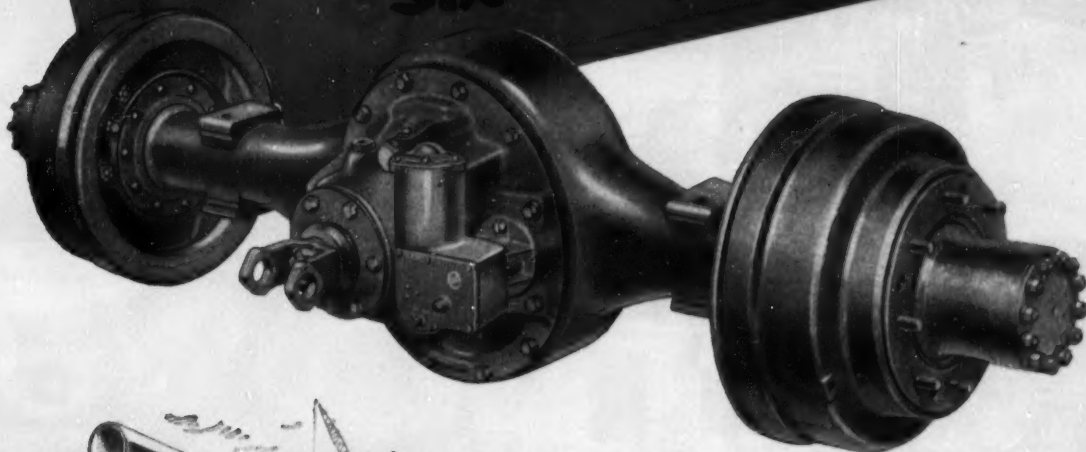
The machine's mast is of tubular open-face box-type construction with fabricated steel crown block assembly and two 20-in. dia roller bearing sheaves. Distance from bottom of crown to top of rotary table is either 24 or 28 ft. Mast is raised or lowered with 20,000-lb rated hydraulic cylinders.

Weight of the complete unit, including truck, is 20,000 lb.



# EATON 2-SPEED AXLES

Cut Costs for Truckers  
Six Ways



More than Two Million  
Eaton Axles in Trucks Today!  
Ask your truck dealer  
for complete information.

- 1 Quicker full load trips, on or off the highway.
- 2 Wider range of vehicle usefulness.
- 3 Reduced wear on engine and power transmitting parts; less maintenance.
- 4 Maximum "earning" time on the job; less "expense" time in the shop.
- 5 Fewer stops for gas and oil; lower operating cost.
- 6 Extra thousands of low cost, trouble-free miles in the life of the truck.

## EATON

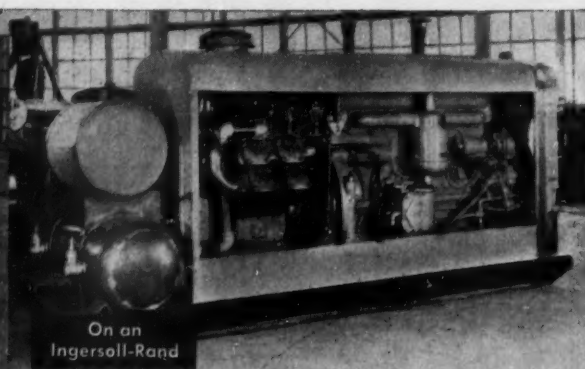
AXLE DIVISION  
MANUFACTURING COMPANY  
CLEVELAND, OHIO



PRODUCTS: Sodium Cooled, Poppet, and Free Valves • Tappets • Hydraulic Valve Lifters • Valve Seat Inserts • Jet Engine Parts • Rotor Pumps • Motor Truck Axles • Permanent Mold Gray Iron Castings • Heater-Defroster Units • Snap Rings • Springtites • Spring Washers • Cold Drawn Steel • Stampings • Leaf and Coil Springs • Dynamatic Drives, Brakes, Dynamometers



On a  
Gardner-Denver



On an  
Ingersoll-Rand

**"AIR POWER"** by

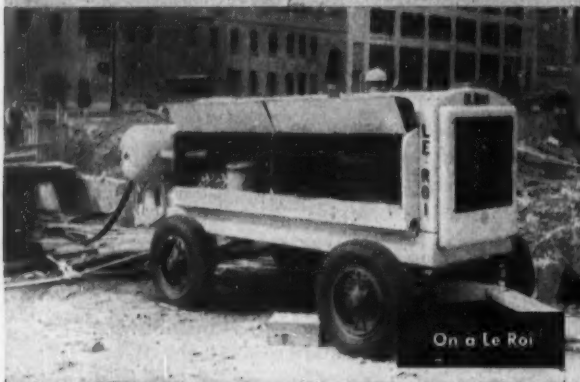
**MURPHY DIESEL**  
rugged, reliable, responsive



On a Jaeger



On a Joy



On a Le Roi



On a Worthington

295

## MURPHY DIESEL COMPANY

5339 W. Burnham St.

Milwaukee 14, Wisconsin

**MURPHY  
DIESEL**

### *Heavy duty power for construction*

Murphy Diesel Engines and power units are available in sizes from 90 to 240 H.P. Engine speeds are 1200 and 1400 rpm. Also available are dual-fuel engines and altitude engines which will main-

tain sea level ratings up to 9000 ft. "Packaged" generating units are available with capacities ranging from 60 to 154 K.W. A.C. or D.C. voltages to suit your requirements.



**End-Welded Studs...**



### ...Support Wall Panels

**END-WELDED STUDS** simplified erection of prefabricated asbestos-insulated aluminum wall-window panels on the 23-story Mile High Center being built in downtown Denver.

Before the exterior steel columns were fireproofed with concrete,  $\frac{1}{4} \times 2$ -in. U-shaped steel straps were hand-welded at four evenly spaced intervals along the flange. Concrete was formed so that the exterior sides of the straps were exposed and flush with the column. Two  $\frac{1}{2} \times 1\frac{1}{2}$ -in. standard Nelson MG studs were then end-welded to each horizontal strap, and pre-punched steel angles for supporting the skin of the building were fastened with nuts to the threaded studs. Approximately 100-lb shear was distributed on each stud.

This method required relatively few welded studs and eliminated the need for special brackets. The George A. Fuller Co. was the general contractor.



What does it say? Is it possible to cross the construction area without long delays? If so, will he be able to make it safely, or is this contractor leaving himself open to possible damage claims?

## How to Protect the Traveling Public When Constructing Roads (No. 2 of a series)

**MAJOR REPAIRS—Good signs will lead public vehicles across a job site safely and with minimum delay**

Many highway improvements must be carried out from beginning to end without interrupting the daily flow of traffic. It then becomes necessary to keep public vehicles outside of work areas and guide them safely and smoothly through the project. In addition, construction schedules must be maintained by the contractor and his personnel must be protected too.

Because the degree of exposure and potential liability increase greatly when public traffic and construction activities mix on the same right-of-way, special precautionary measures are required. The public must be informed about conditions ahead. The contractor must plan operations and movements of construction equipment with extra care and establish limits of work areas with caution so that traffic lanes for the public are not obstructed or made hazardous.

### The Approaches

- Night and day warning must be clearly visible to a driver approaching a section of road undergoing major improvements, advising him of conditions ahead at a glance.

- Post a large sign at least 800 ft in advance of construction on straight stretches and 1,200 ft in advance on curving roads—a generous rectangular sign placed on the right side of the highway, facing the approaching driver, and bearing in large letters the legend "Road Construction Ahead—Reduce Speed". Minimum size recommended for the first sign is 24x40 in. But a bold, oversized sign, measuring 40x60 in., is far more effective. The message on the sign should appear in big black letters on a reflectorized yellow background.

- A second sign, at least 24x24 in., in size and diamond-shaped, should come into view next at least 400 ft in advance of the construction area. It should read "Barricade Ahead", in black letters on a reflectorized yellow background.

- A third sign, at least 200 ft in advance of the construction, should warn of reduced road width just ahead by the legend "One Way Traffic Ahead" or, "Pavement Narrows".

### The Project Extremities

- Steer traffic streams into each end of the project and clear of work areas with some form of channelization. Pavement transitions may be indicated by painting double lines 6 in. wide, setting up multi-colored reflectorized rubber cones, or lining up rows of mounted flags and flare pots.

- Diagonal transition should be at least 150 ft in length in rural areas and 50 ft in urban situations—and terminate where the partial barricade begins.

- At each throat of the project, post a sign 24x24 in.—black on reflectorized yellow—with specific information as to number of travel lanes available. For instance, it might read: "Single Lane—Keep Right".

### The Construction Area

Constant guidance and protection are necessary to prevent damage claims from the public as a result of driving across the highway section under construction. It is necessary that:

- The roadway reserved for traffic be clear of obstructions at all times, particularly contractor's equipment, construction materials and debris.

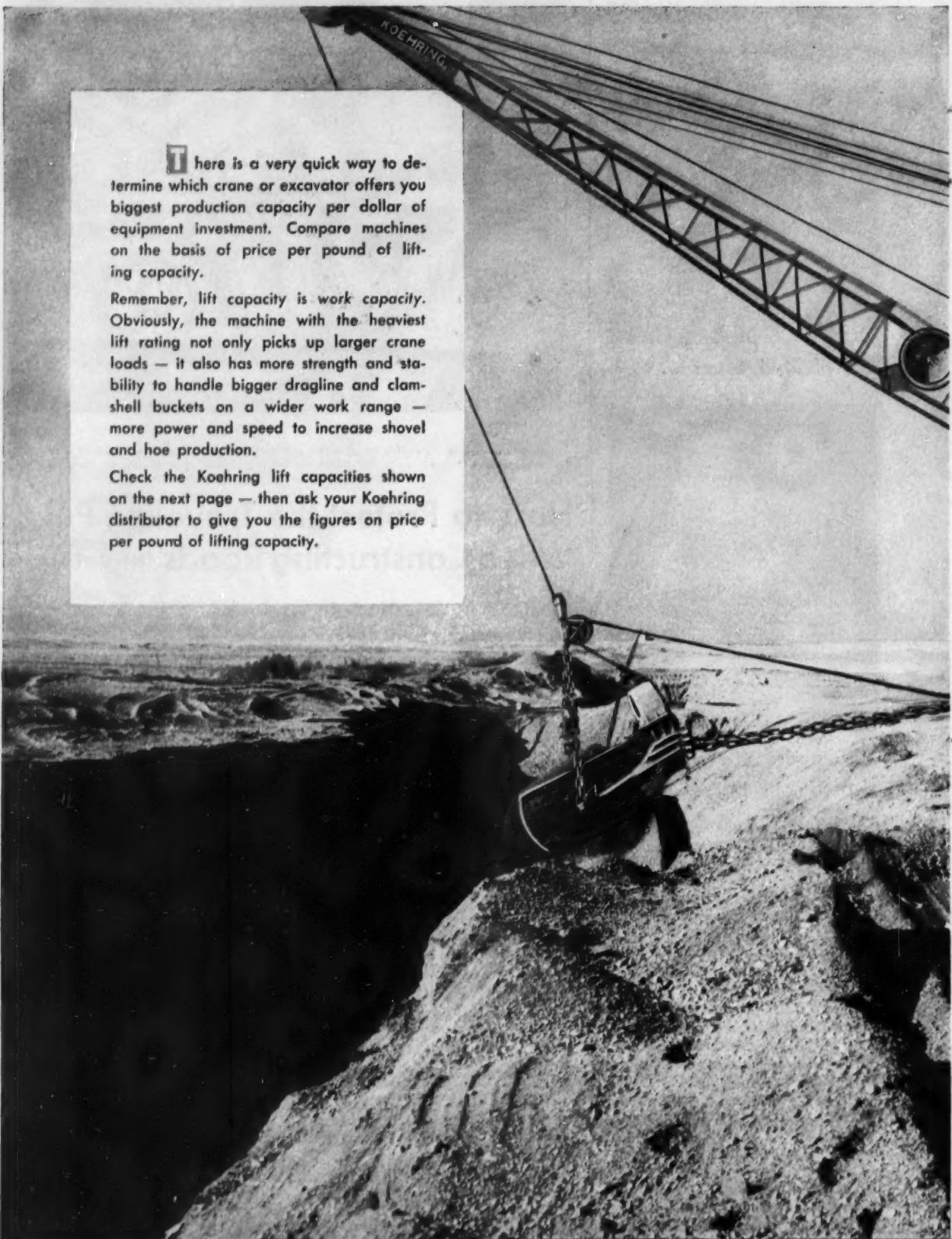
- Alternating one-way movements receive the services of short watchmen at each end of the project, provided with visual or audible means for communicating with each other.

- Hazardous locations enroute such as slides, soft shoulders, slippery areas requiring extra caution or restricted speeds, be indicated by legible signs, at least 24x24 in.

- Flare pots, roadway illumination and other lighting aids conform with state codes and be used during periods of darkness, storm or limited visibility, being promptly extinguished when normal visibility is restored.

This article is the second in a Public Safety Series designed to reduce damage claims. If you would like a copy of this complete series, write to Loss Prevention Department, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston 17, Mass.





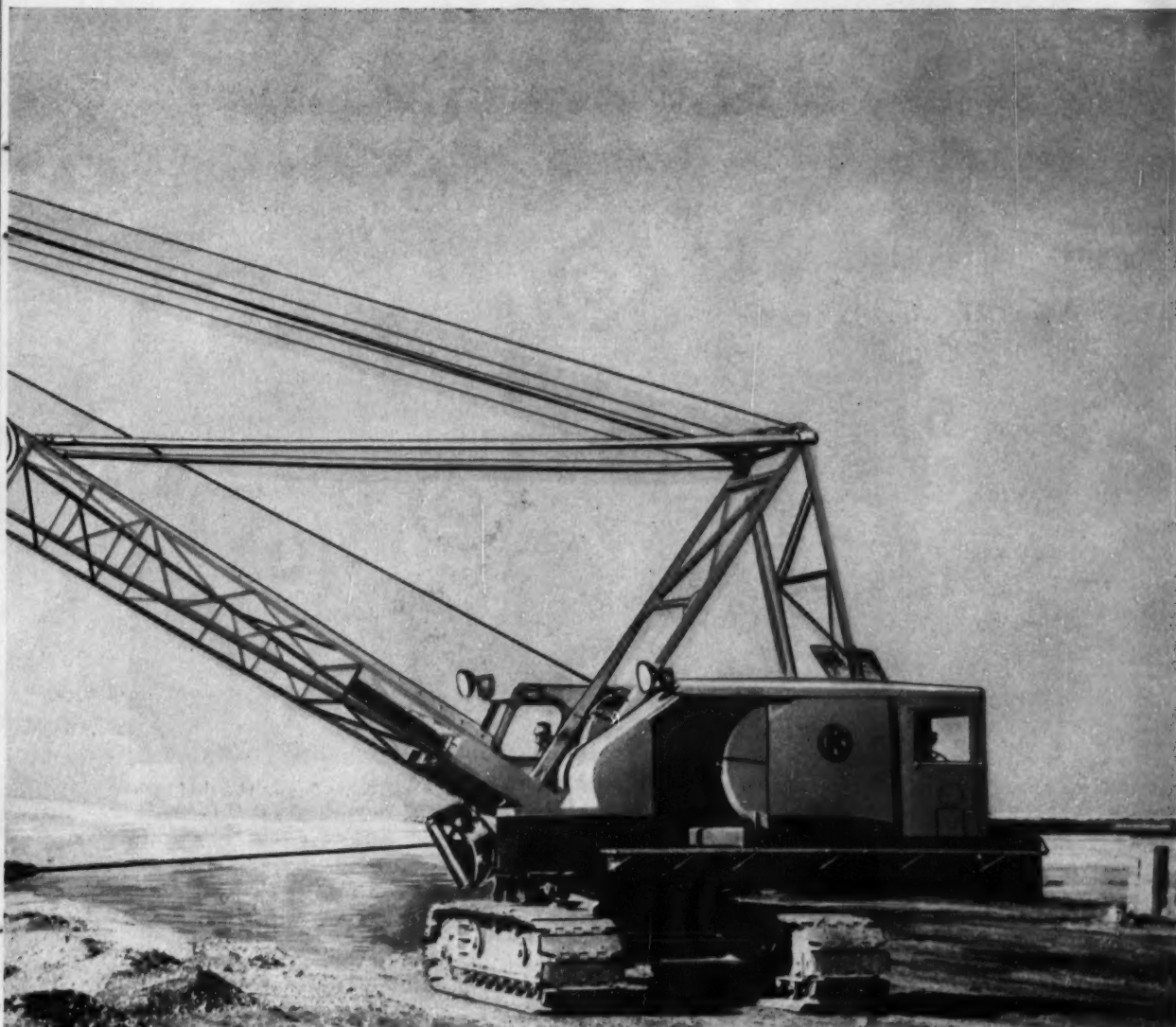
**T**here is a very quick way to determine which crane or excavator offers you biggest production capacity per dollar of equipment investment. Compare machines on the basis of price per pound of lifting capacity.

Remember, lift capacity is work capacity. Obviously, the machine with the heaviest lift rating not only picks up larger crane loads — it also has more strength and stability to handle bigger dragline and clam-shell buckets on a wider work range — more power and speed to increase shovel and hoe production.

Check the Koehring lift capacities shown on the next page — then ask your Koehring distributor to give you the figures on price per pound of lifting capacity.

**KOEHRING COMPANY** Milwaukee 16, Wis.

Subsidiaries: JOHNSON  
PARSONS • KWIK-MIX



**Check price  
per pound  
of lifting  
capacity**



KOEHRING MODEL	SIZE DIPPER	KOEHRING LIFT CAPACITIES (Crawler ratings based on 75% of tipping load. Rubber-tired machines — 85% of tipping load)		PRICE PER POUND OF LIFT CAPACITY*
205 CRAWLER	½-Yd.	20,000 lbs.	30-foot boom at 10-ft. radius	?
205 ON RUBBER	½-Yd.	30,000 lbs.	25-foot boom at 12-ft. radius	?
304 CRAWLER	¾-Yd.	27,800 lbs.	35-foot boom at 12-ft. radius	?
304 ON RUBBER	¾-Yd.	50,000 lbs.	30-foot boom at 10-ft. radius	?
405 CRAWLER	1-Yd.	40,000 lbs.	40-foot boom at 12-ft. radius	?
605 CRAWLER	1½-Yds.	72,300 lbs.	50-foot boom at 12-ft. radius	?
1005 CRAWLER	2½-Yds.	159,000 lbs.	50-foot boom at 12-ft. radius	?

\*Figures available on request—ask your Koehring distributor for them.



BARBER-GREENE MODEL 550 WINDROW LOADER, with capacity of 4 cu yd per min is a low cost, highly maneuverable machine

that makes good use of the model 50 John Deere rubber-tired tractor for power. The machine will discharge material at 10 ft.

## Tractor Windrow Loader...Medium Size



THREE CLAW-LIKE SPADES operating on eccentrics and rocker arms, beat into the windrow, reducing material for easier handling.

UP 'TIL NOW most windrow loader manufacturers have stressed high capacity for their products, but here's one, the new Barber-Greene Model 550, that is admittedly produced for medium-size operations.

It is in the capacity bracket of 4 cu yd per min, 7 cu yd in snow and ice, is highly maneuverable and uses a Model 50 John Deere rubber-tired tractor for power.

Barber-Greene Co., of Aurora, Ill., has been testing pilot models on city, county and state roads for the last two years under conditions and procedures normally followed by users.

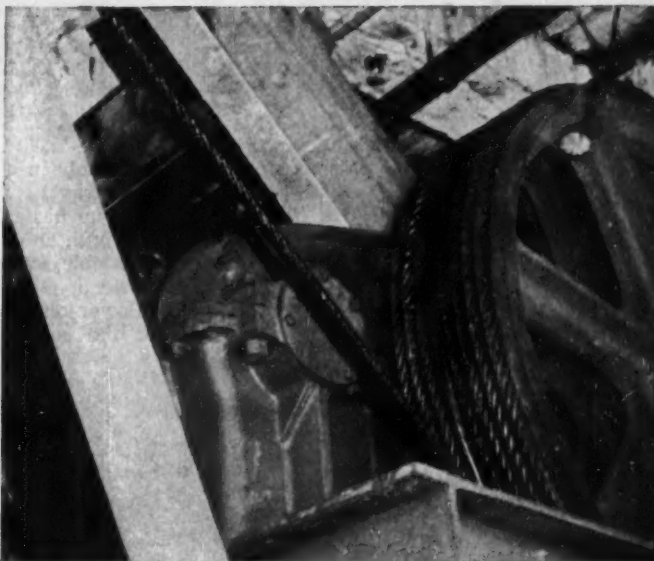
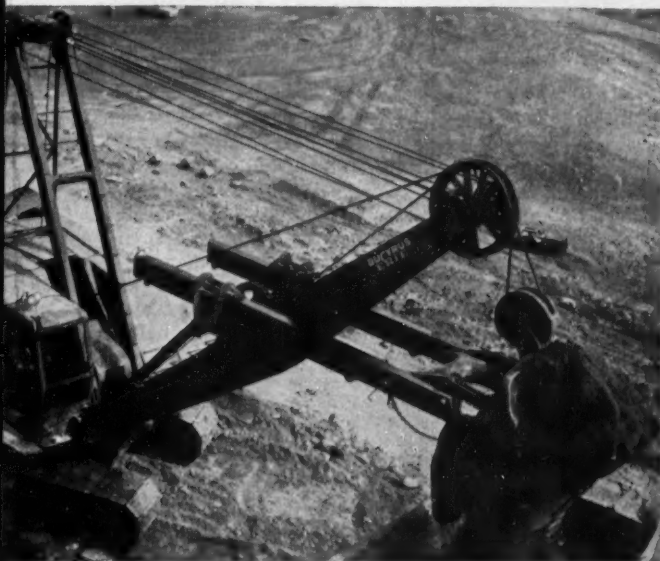
Basically the new machine consists of a loading belt conveyor boom and mechanical feeding mechanism, mounted on the low-cost John Deere tractor. The loading boom uses an unusual power feed mechanism to move windrowed material on to the 18-in. cleated rubber conveyor belt. Three claw-like spades operate on eccentrics and rocker arms, eating into the windrow with a clawing-chopping action which reduces lumps of sod and other materials into easier-to-handle sizes and pulls them on to the belt.

The feeding mechanism has a floating action to prevent damage from buried rocks or from other rigid obstructions.

The new unit is highly maneuverable. It will turn

(Continued on page 140)





**EXTRA FLEXIBILITY**—Wire rope encounters fast sheave action, reverse bending, constant stop-and-start operation on many jobs. When this same rope must also lift or pull heavy loads, an unusually flexible, strong wire rope is needed.

Rope jobs like paver skip hoists, overhead cranes, large shovel and dragline hoists, and sawmill carriages demand these qualities. That's where the use of 6 x 37 Red-Strand wire rope saves time and money.

## Where will 6x37 Red-Strand improve your wire rope service?

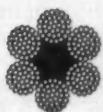
Look at a cross section of 6 x 37 wire rope. You see three rings of small, uniformly sized wires in each strand. This differs from a rope construction like 6 x 19, which contains fewer and larger wires.

The *smaller size* wires make 6 x 37 more *flexible*. The *larger number* of wires maintains rope *strength*.

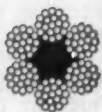
Would this combination improve your wire rope service? Would it solve a problem for you? Leschen's higher-than-rated quality is also providing longer-than-expected service to heavy industry everywhere.

Check with your Leschen man. He can help you.

Leschen's 64-page Wire Rope Handbook tells you all about 6 x 37 and other Red-Strand wire rope constructions. Ask or send for your free copy.



6 x 37



6 x 19

### LESCHEN WIRE ROPE DIVISION

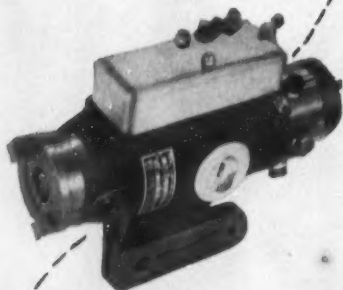
The Watson-Stillman Company  
(A SUBSIDIARY OF H. K. PORTER COMPANY, INC.)  
St. Louis 12, Missouri



## Buying A New Diesel?



look for this  
revolutionary new  
fuel injection pump



It's Roosa Master—the modern fuel injection pump. Simple . . . compact . . . light-weight . . . and extra easy to service . . . Roosa Master offers performance-proven life and trouble-free fuel injection for all major types of high speed diesel engines.

Perfected after 15 years of engineering research and extensive field experience, Roosa Master is manufactured by Hartford Machine Screw Company, one of New England's leading manufacturers of precision machined products, and backed by a 75-year-old tradition of integrity and dependable customer service.

For the complete facts, write to Hartford Machine Screw Company, Hartford 2, Connecticut, or consult your engine manufacturer.



makes good  
diesels better!

## WINDROW LOADER . . . Continued



LOADER WILL HANDLE wet snow with broken ice at the rate of 7 cu yd per min. Feeding mechanism has a floating action to prevent damage from obstructions.

completely in a radius of just 8 ft 6 in. Travel speed is 10 mph. The conveyor has a discharge height of 10 ft with an overhang of 8 ft. An adjustable, side-discharge baffle is provided.

Power-operated hydraulic rams lift the entire loading boom for

transport. The weight of the boom is transferred directly to the tractor frame by radius rods, and a special weight-transfer device compensates for the side-mount boom.

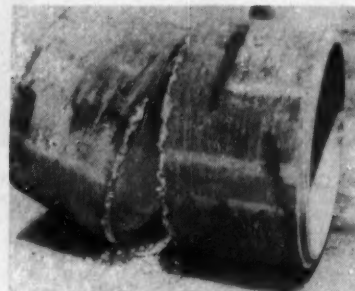
Both operator and tractor are protected from falling stones by a heavy wire guard along the belt.



### Detonating Fuse . . .

A METHOD of cutting reinforced concrete pipe in the field with explosives is being tested by United Concrete Pipe Corp. at their plant in Baldwin Park, Calif. Preliminary results indicate that it may be faster and cheaper than the conventional method of using air hammers or hammers and chisels.

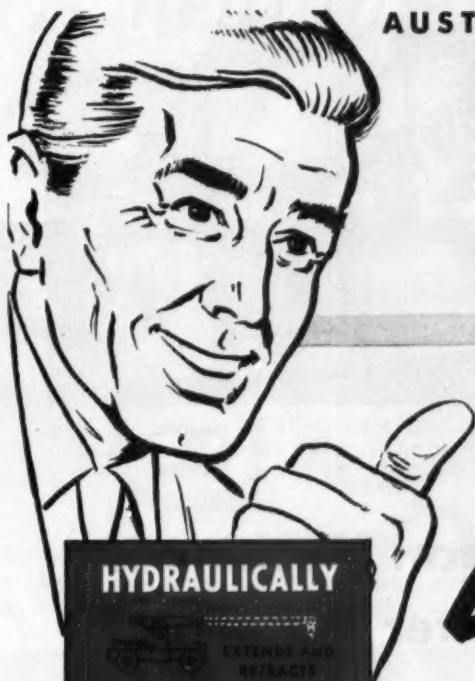
Assisted by Jack Cunningham of the Atlas Powder Co., the corporation has conducted experiments with several sizes of pipe with varying wall thicknesses. Generally, Primacord fuse is carefully wrapped around the pipe and detonated with electric blasting caps.



### . . . Cuts Concrete Pipe

The number of turns and the position of the cord produce the desired amount of fracture to sever the pipe.

The blast travels through the Primacord at about 18,000 ft per sec, producing an instantaneous effect. A distinct, clean crack is obtained completely around the inside of the pipe to permit chipping of the concrete and cutting of the reinforcing. Conventional methods require a cut of 4 in. and leave a jagged edge. The Primacord method results in only a 1-in. cut, produces a clean edge, and probably saves 75% of the labor cost.



## AUSTIN-WESTERN HYDRAULIC CRANE



*That's what I call a*  
**LIVE BOOM**



... as you will agree, when you see this most versatile of all mobile cranes in action. During the entire pickup—carry—placement cycle, the boom is completely "alive," responds instantly to the operator's every demand; gets the job done with maximum ease and speed.

All tractor models have

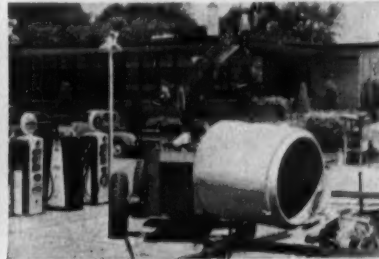
4-wheel steer for maneuvering in close quarters; some have 4-wheel drive for maximum tractive effort. Boom lengths range from 18 to 35 feet. Outriggers may be had, if wanted. Usefulness is increased by such optional equipment as magnet and winch, and either clam-shell or orange peel bucket.



**CLOSE QUARTERS.** Telescopic boom reaches up and over in an oil refinery.



**SEWER EXCAVATION.** Six men and one Hydraulic Crane replace 27 men and three slow-moving cranes.



**SETTING PIPE.** One of many uses found for the Hydraulic Crane by this contractor.

*On jobs like these, and dozens more, the Hydraulic Crane is making materials handling history.*

### AUSTIN-WESTERN COMPANY

Construction Equipment Division • Baldwin-Lima-Hamilton Corporation

AURORA, ILLINOIS, U.S.A.

Power Graders • Motor Sweepers  
Road Rollers • Hydraulic Cranes

#### AUSTIN-WESTERN COMPANY

607 Farnsworth Avenue, Aurora, Illinois

Please send complete information and literature on the Austin-Western Hydraulic Crane.

Name .....

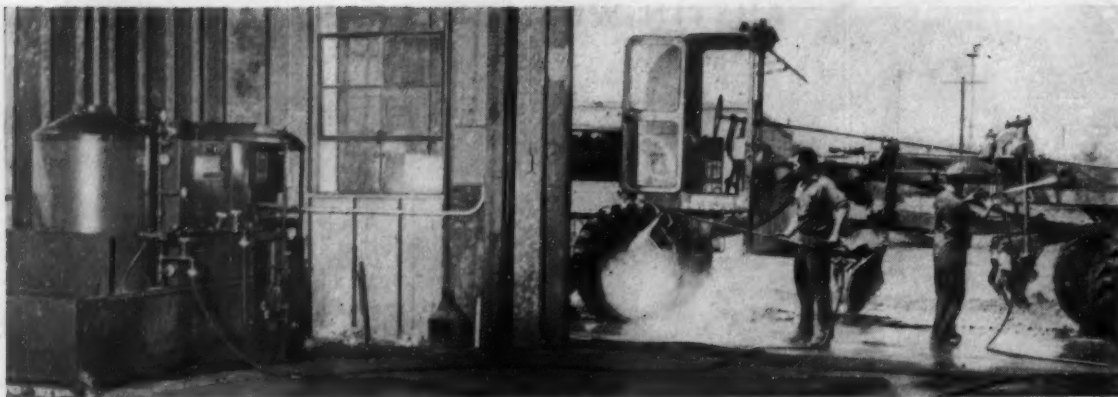
Title .....

Company .....

Street .....

City ..... Zone ..... State .....





THIS CATERPILLAR NO. 12 MOTOR GRADER is getting a good cleaning using a Malsbary steam cleaner manufactured in Oakland,

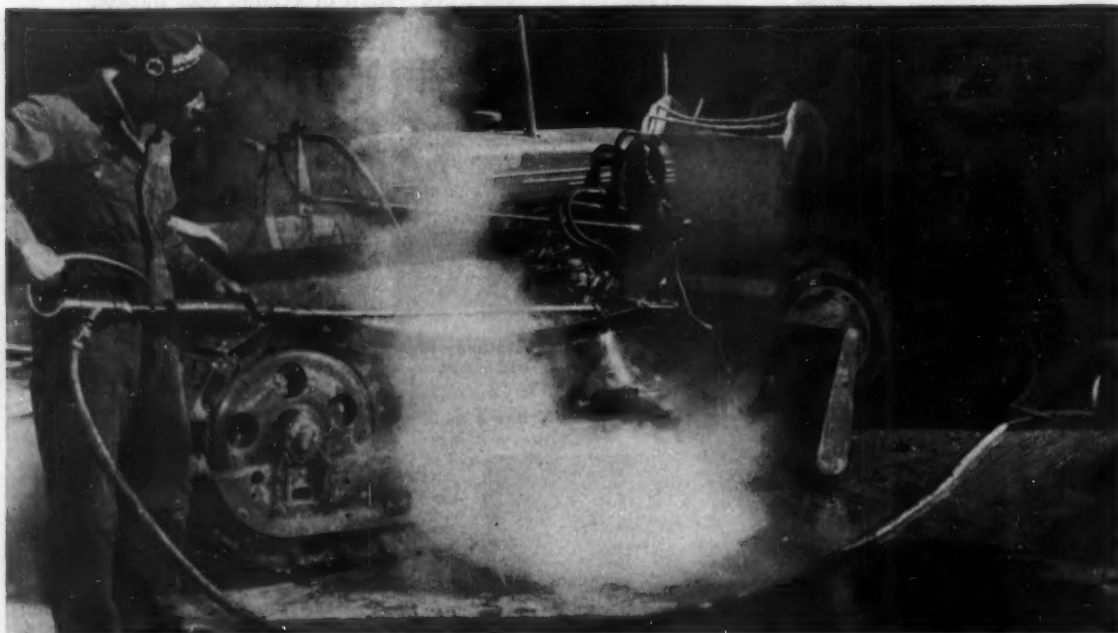
Calif. L. G. De Felice & Son, Inc., North Haven, Conn. uses the cleaning unit 10 hr per day, 6 days per week.



THIS HEAVY-DUTY Malsbary 300 steam cleaner is housed in a corner out of the way, with the hose suspended from an overhead swivel boom. Steam cleaners are ideal for small parts.

## A Clean Machine Is A Better Machine

THE CLEANING OF heavy-duty earthmoving equipment is much like washing your hands—the dirtier they get the more you need lots of cleaning solutions, heat and pressure. There are many different types, models and manufacturers, but they are all designed to give high pressures, high heat, high volume to lick tough cleaning jobs in a minimum of time. Such a practice of cleaning will reduce downtime, add years to equipment, help catch repair needs early, makes repainting easy and in some cases, reduce fire hazards.



HIGH PRESSURE STEAM CLEANING makes short work of road oil, tars, and grease on this Oliver, Model OC-3 tractor owned by Paving Supply and Equipment Co., Washington, D. C. This cleaner

works an average of 8 hr daily throughout the year. Such units range in pressure from 100 to 400 psi; temperatures up to 325 deg and volumes from 110 to 2,100 gph.

# A heaping bucket every time!

## WATCH THIS.....



**1** Watch this amazing bucket action—just flip the direction lever to "Forward" and step on the gas



**2** Digging in—the torque converter delivers smooth, steady power. Note the tread-marks—no wheel spin



**3** Roll back the heaped-up bucket—tip-back action where it counts: *in the pile*



**4** Lift the bucket clear, hold it level—that heaped-up load is well over a cubic yard of material



**5** Back out—flip the lever to "Reverse" and step on the gas; no clutch, no gear-shift, no wasted time



**6** Dump the load, back away, and hustle in for another heaping bucket—makes short work of loading a truck

You get a full bucket every pass with a MICHIGAN . . . and more passes every hour. Result: bigger yardage! For a real convincer, have a demonstration on your job—your MICHIGAN\* dealer will arrange it. Let's make a date—send the coupon on your letterhead.

\*A Trademark of Clark Equipment Company

**CLARK  
EQUIPMENT**

**CLARK EQUIPMENT COMPANY**  
Construction Machinery Division  
380 Second St. • Benton Harbor, Michigan, U.S.A.

Have your dealer make a date to demonstrate the MICHIGAN Tractor Shovel

Name \_\_\_\_\_ Title \_\_\_\_\_  
Firm \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



**Aetna bonds contracts totalling  
\$50,615,494 on the new  
OHIO TURNPIKE**

The Aetna Casualty and Surety Company has written bonds on contracts totalling \$50,615,494 for contractors engaged in construction of the new 241 mile Ohio Turnpike. This represents nearly *one fourth* of the super highway's total estimated cost of \$211,875,568.

Here is impressive evidence of the confidence Aetna enjoys among some of the country's leading general contractors, who know that Aetna's coast-to-coast service facilities match their own countrywide operations. They know, too, that Aetna's experienced and cooperative personnel can expedite the prompt handling of their bonds, no matter where their next project is located — or how complex it may be.

Next time you need a bond, why not call the Aetna representative in your community and join the ranks of hundreds who bond with Aetna — always.

**No job too big--no job too small**

**ÆTNA CASUALTY AND SURETY COMPANY**

AFFILIATED COMPANIES: ÆTNA LIFE INSURANCE COMPANY

AUTOMOBILE INSURANCE COMPANY • STANDARD FIRE INSURANCE COMPANY

HARTFORD 15, CONNECTICUT



## **On-the-Job Contractor-Labor Relations**

by LEON B. KROMER, JR.

### **Building Trades and AFL Executive Councils Meet**

MEETING IN NEW YORK last month just prior to the AFL Executive Council quarterly session, the Building Trades Department Executive Council elected a new secretary-treasurer of the Department to succeed Joe Keenan. Frank Bonadio, assistant to the international president of the Sheet Metal Workers, was selected for the post. For many years Bonadio was head of the sheet metal workers' local union in Baltimore and seven years ago became assistant to Robert Byron in the Washington headquarters of the union. He succeeds Joe Keenan who was elected secretary of his own union, the International Brotherhood of Electrical Workers (CM&E, May, p. 156).

The AFL Executive Council tackled two problems directly affecting contractors—ways and means of settling jurisdictional strife among its own members and eliminating fraud in the administration of union welfare funds. Both will be referred to the AFL convention to be held later this month in Los Angeles.

Two types of jurisdictional disputes have plagued the AFL since its beginning:

What union should organize a particular group of workers, and

Which union's members should perform a specific type of work.

The Council adopted a plan (with Dave Beck, president of the teamsters, not voting) providing for mediation of these disputes and, if this fails, compulsory arbitration. If the plan is adopted by the convention, it will take effect as individual international unions affiliated with the AFL adopt it. It is not contemplated that the plan will supplant the National Joint Board for the Settlement of Jurisdictional Disputes which was established through agreement between the international unions of the building trades and the major contractors' associations in the construction industry.

(Continued on page 147)



**YELLOW STRAND**



# SPEEDI-SERVICE



LESS DOWNTIME, LESS RECORD KEEPING, IMMEDIATE DELIVERY — that's what you get with Yellow Strand Speedi-Service... and it's free! You pay no more for higher-quality, longer-lived Yellow Strand Wire Rope and Slings, delivered on your Speedi-Service Plan, than you do for ordinary rope.

Your Broderick & Bascom distributor can put Speedi-Service to work for you. Just give him a call or use the coupon.

Here's how Speedi-Service saves you money . . . Your equipment and its wire rope needs are registered by your Broderick & Bascom distributor. When rope wear occurs, phone him. He will consult your file to determine what rope is needed, fill the need from controlled stocks, have your rope ready for delivery in 10-20 minutes. There's no records to keep, no waiting — just Speedi-Service!

**BRODERICK & BASCOM ROPE CO.**  
4203 Union Blvd. St. Louis 15, Mo.

**SEND FOR SPEEDI-SERVICE DETAILS...**

SPECIFY

**Yellow Strand**

FOR SAVINGS . . . SAFETY . . . SPEEDI-SERVICE

Broderick & Bascom Rope Co.  
4203 Union Blvd., St. Louis 15, Mo.  
Your Speedi-Service Plan sounds good to me. Send me more information on the plan and the name of my nearest distributor.

Signed.....

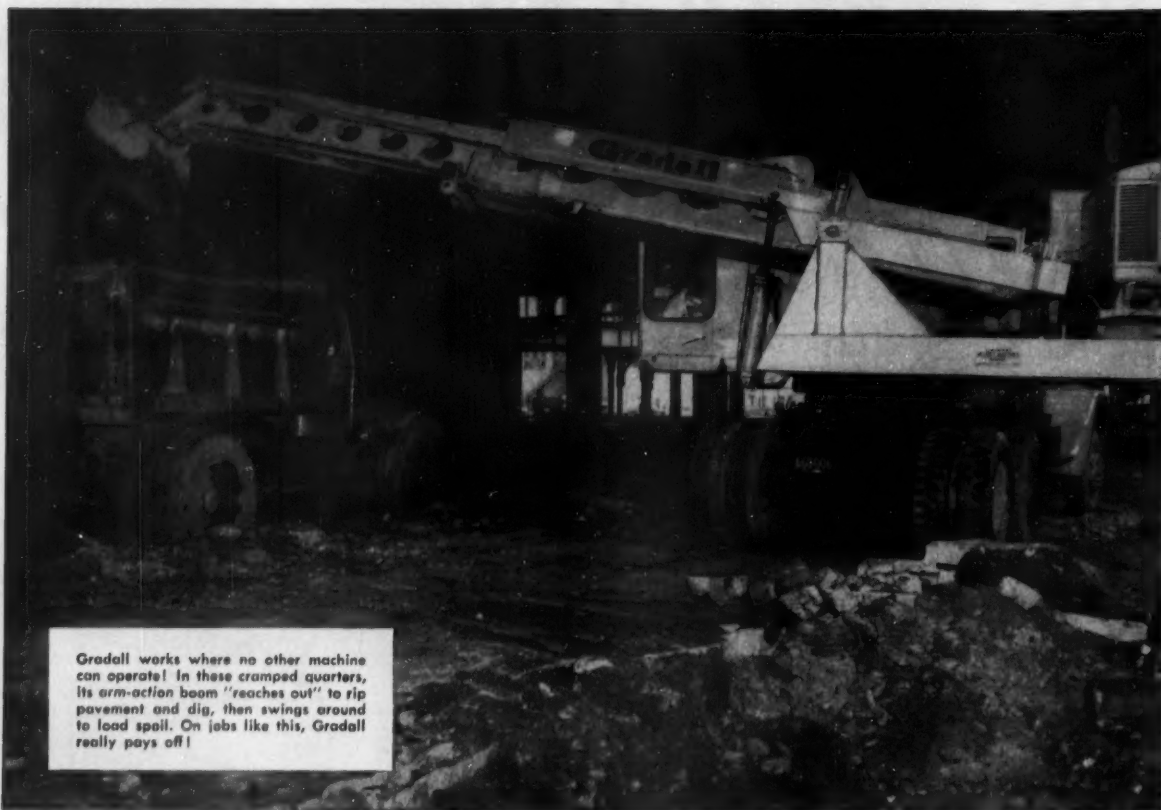
Title.....

Company.....

Address.....

City..... State.....

# BETTER YOUR BIDS!



Gradall works where no other machine can operate! In these cramped quarters, its arm-action boom "reaches out" to rip pavement and dig, then swings around to load spoil. On jobs like this, Gradall really pays off!

## Figure with a Gradall

**I**T'S TOUGH to bid *against* a Gradall contractor! He "has the edge" on you, simply because Gradall cuts costs on *any* contract, large or small.

With a *single investment* a Gradall contractor has a machine that does the work of several "specialized" machines, so his overhead and maintenance costs are lower.

And on any contract he gets, he keeps a Gradall *busy*—on many different jobs—so he doesn't lose money on idle equipment. With a Gradall he completes contracts faster.

A Gradall does the job *better*, too—so he can eliminate hand labor costs, cut insurance premiums.

On *operating costs* alone, he can beat you, because Gradall costs very little more to operate than a truck.

But you, too, can *better your bids*—be more competitive—when you figure your estimates on the basis of using Gradalls.

Let your Gradall Distributor *prove* to you how this multi-purpose machine can make money for you. See him for a field demonstration right on your job.



**Gradall cuts costs on all these jobs—and many more**

- Trenching and backfilling
- Excavating
- Placing tanks, culverts, curbs, etc.
- Sloping and grading
- Ditch digging and cleaning
- Ripping and loading old pavement
- Hand finishing and clean-up

**Gradall Distributors in over 75 principal cities  
in the United States and Canada**



**YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY**

struction industry. How these two procedures will dovetail depends upon the plan adopted by the AFL convention.

Apparently the Executive Council, in referring administration of welfare funds to the convention, expects that some steps will be taken to assure honesty in the handling of these funds. As to one direction that could be followed in meeting the problem, the Council adopted a proposal requiring annual audits of the books and financial records of all AFL "Federal" unions (those affiliated directly to the AFL, not through an international union).

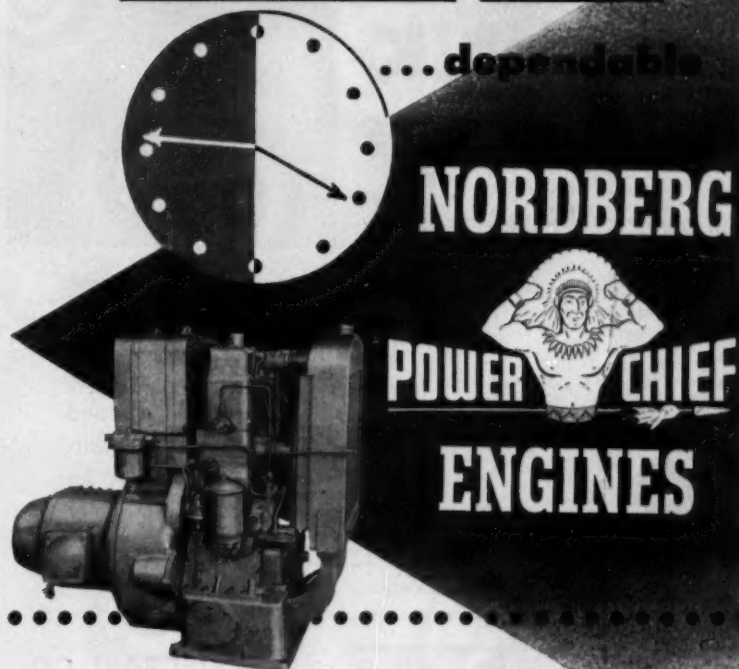
### Recent NLRB Decisions

It pays contractors to watch National Labor Relation Board decisions that may affect them. Some are beneficial to the position that contractors may want to take when collective bargaining breaks down; others point to dangers of violating the Taft-Hartley Act.

Recently the Board decided that a lockout of union employees by members of an employers' association is justified when the union strikes one of its members. The case involved a union representing most of the employees of members of an association which had, for many years, constituted the employers' bargaining agent. Although their agreement had expired at the end of April, the union and employer committees continued negotiations until May 26 when the employees of one of the association members struck and closed down the plant. The following day the other members laid off their employees, advising the union that the lay-off was a result of the strike, and that the men would be recalled when the strike was terminated. Agreement was reached June 3, and the union filed the unfair labor practice complaint. The Board, in dismissing the charge, said "A strike of employees against one employer member of a multi-employer bargaining unit constitutes a threat of strike action against the other employers . . . which legally justifies their resort to a temporary lockout of employees."

In another case, the Board ruled that an employer does not have to bargain with a union that is engaged in a competing business. This is the first time that such a problem has come to the Board. While the union represented the productive employees of one company, it

## built for 'round-the-clock CONSTRUCTION SERVICE



**ELECTRIC POWER FOR LIGHTING OR FOR CRANE  
MAGNETS—ORIGINAL OR REPLACEMENT POWER IN MIXERS  
AND OTHER PORTABLE EQUIPMENT—FOR POWERING  
AND RE-POWERING SMALLER SHOVELS, CRANES, etc.**

... These are but a few of the scores of construction jobs Nordberg Power Chief Diesel engines can handle, not only better, but at lower cost. Built in 1, 2 and 3-cylinder sizes, these compact, heavy-duty power units provide from 10 to 45 hp, or 6 to 30 kw for around-the-clock construction service.

*Nordberg Mfg. Co., Milwaukee, Wisconsin*

◀ THERE IS A NORDBERG DISTRIBUTOR TO SERVE YOU  
IN ALL PRINCIPAL CITIES. ▶

# NORDBERG

Builders of America's Largest Line of Heavy Duty Diesels



**MAIL  
COUPON  
FOR DATA**

Nordberg Mfg. Co., Milwaukee, Wis. CM  
Please send full details on Nordberg POWER CHIEF Diesel Engines.  
Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_  
4-354-C



FOR LONG-LIFE ECONOMY

RE-POWER WITH —

# FUNK POWER TAKE-OFFS

AND

GEAR REDUCTION POWER TAKE-OFFS

OTHER FUNK ITEMS:  
Right Angle Take-Offs.  
Front End Take-Offs.  
Jack Shaft Extensions.

Ford Tractor Conversion Kit adapts 6 or V-8 engine, doubles power.



Special gear reduction with two shafts, one turning same speed and rotation as engine, the other anti-engine-wise at optional reduction.

... are available with over-center clutches for all engines with SAE flywheel housings. Gear reduction units feature exclusive straddle mounted pinions; special ratios and special adaptations of standard units. Wide selection of standard types, sizes and ratios stocked for immediate shipment.

WRITE FOR CATALOG!

—our engineers will be glad to assist with your power problems.



**FUNK AIRCRAFT CO.**

3303 Airport Drive

Coffeyville, Kan.



You'll find it so easy to wheel heavy loads in Sterling Barrows. Only a minimum of effort is required. Sterling's perfectly balanced construction permits 80% of the load to be carried on the wheel ... only 20% by the operator. This increases efficiency ... allows more loads to be hauled each day ... reduces hauling costs.

**ORDER NOW!**

DEALER PLAN AVAILABLE.  
WRITE FOR DETAILS.

STERLING WHEELBARROW CO., Milwaukee 14, Wis.



Equipped with steel wheel or wheel with zero pressure or pneumatic tire.



Model CSW with Pneumatic Tired Wheel and Wood Frame.

Look for this Mark of  
STERLING Quality

## LABOR . . . Continued

established another company engaged in the same business. During collective bargaining the first company broke off negotiations and stated that it would resume "if and when the union is no longer a competitor. . . ." The Board held that the union "cannot perform its statutory function as bargaining representative if, simultaneously, it is an immediate business competitor of the particular employer whose employees it purports to represent."

A strike to force modification of an agreement was ruled illegal by the Board because the union failed to give the 30 days' notice of the dispute to the Federal Mediation and Conciliation Service. The Board ordered the union to stop the strike and bargain, as required by the Taft-Hartley Act. The facts were: The company and the union negotiated an agreement to run from Nov. 1, 1951 to Oct. 31, 1953 which provided that upon sixty days' notice prior to Nov. 1, 1952, either party could open those provisions covering wages and hours of work. The union notified the employer in August 1952 and after a series of unsuccessful bargaining sessions, the union struck on Dec. 11, 1952. The union did not give notice to the Mediation Service until one month after the start of the strike.

Should you be faced with a similar situation, be sure that the union has notified the Mediation Service at least 30 days prior to taking strike action. The Taft-Hartley Act requires the 30 days' notice of the existence of a dispute over contract modification and to "continue (the contract) in full force and effect without resorting to strike."

## Dept. of Labor Sues Under Wage-Hour Law

In one of the first cases of its kind the Department of Labor won a decision in the Federal Court of Appeals at New Orleans to collect unpaid minimum wages for a truck driver employed by an oil company. The truck driver, under a new section of the Wage-Hour Law (CM&E, March, 1952, p. 98; May 1953, p. 154), asked the Secretary of Labor to bring suit in his behalf.

The Fair Labor Standard Act (Wage-Hour Law) requires payment to employees engaged in in-  
(Continued on page 151)

# Get a LOAD of This!

**Exclusive Drott Skid Shoes are the big reason why INTERNATIONAL crawlers with Drott Skid Shovels deliver 300% greater digging force, bigger payloads, faster transport than all others!**

**THE PAY IS IN TO STAY.** Look at that load taken out of the stockpile. It's heaped and the heap is retained by the 41° bucket roll-back and lift principle until the load is dumped where the operator wishes it placed.



Big news in the front-end loader industry today is the amazing performance of the new leader in loaders—INTERNATIONAL crawler equipped with Drott Skid Shovels.

Drott Skid Loaders have exclusive Skid Shoes that permit use of the ancient lever principle to supply 300% greater break-out force than all other shovels. These same Skid Shoes transmit loading force into the ground and let the units transport heaped loads at ground level in third gear—not first—to speed every loading cycle and eliminate carrying strain.

The Hydro-Spring is still another Drott exclusive—absorbing 70% of the shocks normally encountered in front-end loaders to extend equipment life and make operating far easier.

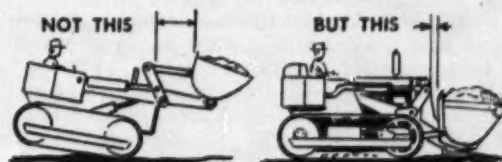
Skid Shovels come in four sizes— $\frac{7}{8}$ ,  $1\frac{1}{4}$ , 2 and 3 cu. yd. buckets for the INTERNATIONAL TD-6, TD-9, TD-14A and TD-18A. You can get an eye-opening demonstration of the model suited to your needs by simply calling your INTERNATIONAL Industrial Power Distributor today.

**INTERNATIONAL HARVESTER COMPANY**  
CHICAGO 1, ILLINOIS

## PRY-ACTION BREAK-OUT



## SKID SHOE TRANSPORTATION

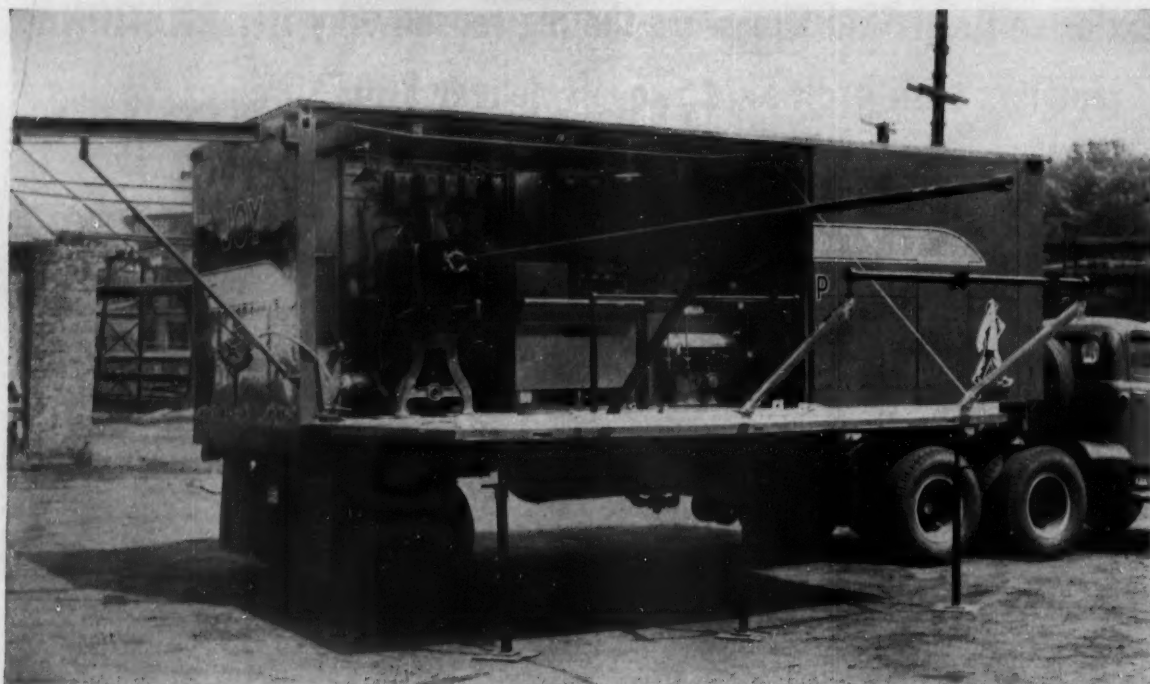


**INTERNATIONAL**  
**DROTT**



**MOBILE SHOP FACILITATES DEEP-HOLE DRILLING.** Operated by Joy Manufacturing Company, this tractor-trailer unit services Bethlehem 2-in.-Round Hollow used in drilling 4½-in.-diam holes.

**UPSETTER IN ACTION.** This upsetting machine can forge a 3½-in.-round upset on the 2-in. drill steel in 12 seconds. Shop uses three sources of power—air, electricity and water.



## Mobile Unit Reconditions Special 2-in.-Round Bethlehem Hollow

This huge shop on wheels is one of a growing fleet of mobile units operated by Joy Manufacturing Company, Pittsburgh, Pa. The unit, serving an area covering hundreds of square miles, was designed for the reconditioning of 2-in.-round hollow drill steel, a drill steel specially developed for use with the Joy Challenger Drill.

The Challenger Drill, with its 5¼-in. bore, is capable of drilling 4½-in.-diameter holes through hard rock to depths of 50 ft or more. It has a 26-ft feed, and a self-propelled mounting. But because customers did not have the facilities to recondition the drill steel used with this huge drill, it was decided to render a highly specialized type of field service, which would minimize lost time, and reduce transportation costs.

The truck is amply stocked with service parts, and is staffed by men who know the answers pertaining to deep-hole drilling. Included in its equipment are heavy-duty

sharpeners, grinders, induction heating for forging and treating, and a radiator type of air cooler to cool the quenching oil. It uses three sources of power—air, electricity and water.

The Bethlehem 2-in.-Round Hollow Drill Steel used with the Challenger Drill has a standard carbon analysis and is an outstanding steel for deep-hole drilling because of its toughness and long service life. This fatigue-resisting steel, available in large sizes, permits maximum rock removal with fewer holes. It comes in 22-ft and 32-ft lengths, and has a ¾-in. center hole which is smooth and true. The steel can be easily forged and heat-treated, and has a wide quenching range.

**BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.**

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

**Two Grades of**  
**BETHLEHEM HOLLOW DRILL STEEL**  
**CARBON • ULTRA-ALLOY (chrome moly)**





terstate commerce or the production of goods for interstate commerce of at least \$.75 per hr and not less than time and one-half the employee's regular rate of pay for all time worked beyond 40 hr in a regular work week.

In this case the Court rejected the company's contention that the benefits of the law should be applicable only to the hours that the employee could specifically segregate as spent in interstate commerce. The Court maintained that, although the employee worked part of the week on intra-state activities, he was entitled to the minimum wages under the law for the entire week whenever a substantial part of his time was spent on interstate activities.

Recheck payrolls to make sure you are complying with the minimum wage and overtime requirements of the act. As the Secretary of Labor stated "The decision will make the collection of back wages due under the act easier, by removing a big obstacle that has for some years impaired the recovery of wages due to employees . . ."



### Old-Tire Device Lengthens Cable Life

An old truck tire inserted between the load line and a steel breaking ball saves considerable wear on crane cables. C. J. Langenfelter & Son, of Baltimore, is using the device where he is required to break up oversize stones on his Schuylkill Expressway job in Philadelphia. A tire wears out in about a week, but most jobs have plenty of replacements.

**FOR QUICK,  
CONVENIENT  
COMPACTION  
of BLACKTOP  
in HIGHWAY  
WIDENING  
and PATCHING,  
DRIVES,  
WALKS, ETC.**

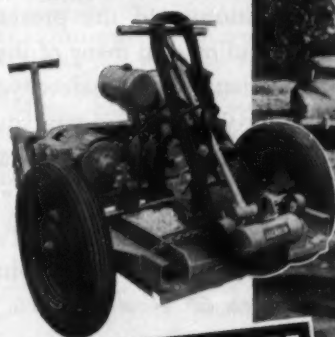


## JACKSON VIBRATORY COMPACTOR

Small as it is, this extremely powerful machine will compact bituminous mixes close to maximum density at the rate of 2400 sq. ft. per hour. Self-propelling, the operator has only to guide it. Operated from a

Jackson Power Plant mounted on auto trailer with quick pickup of Compactor, it is highly mobile and a tremendous time-and-money-saver on such jobs as indicated at left. In granular soils it quickly achieves maximum density, and since it is available with quickly interchangeable bases from 12" to 26" wide, it is easily adaptable to a wide variety of applications. Write for the complete facts on this exceptionally advantageous piece of equipment.

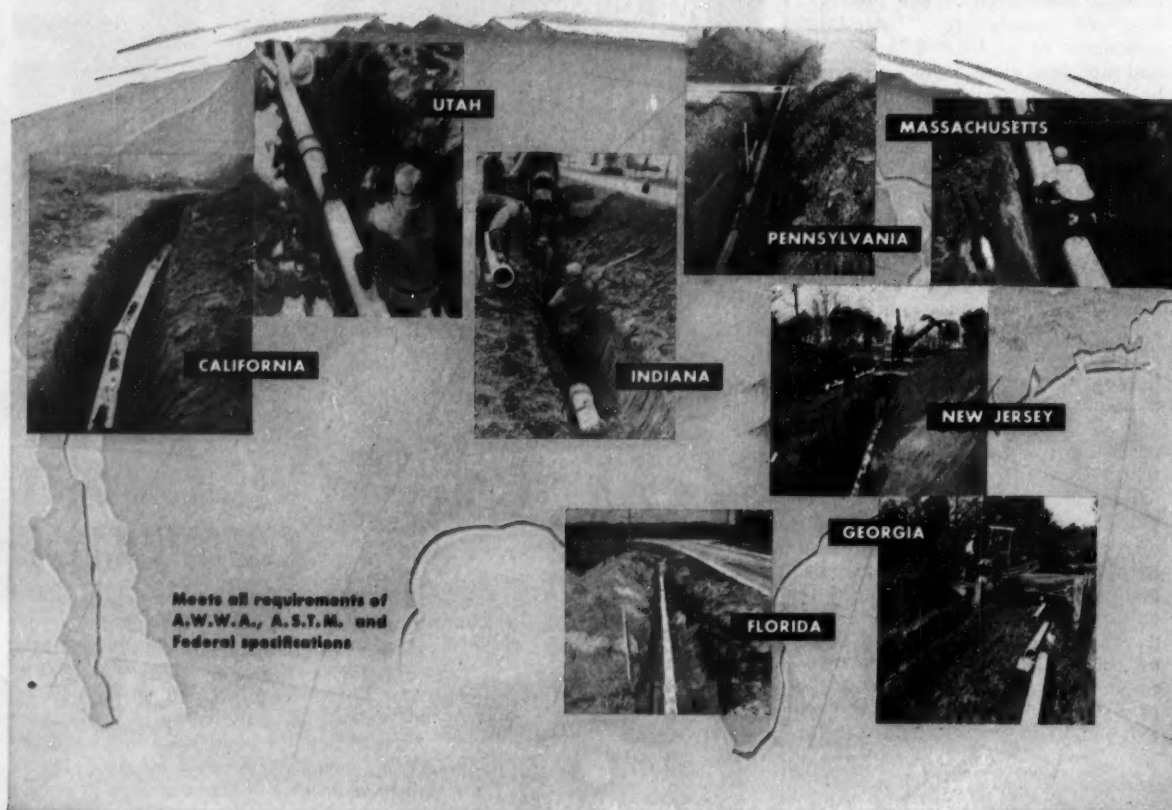
**And . . .  
GRANULAR SOIL  
FILLS, IN  
BRIDGE  
APPROACHES,  
PIPE LINES,  
TRENCHES,  
CONCRETE FLOOR  
SUB-BASES, ETC.**



**JACKSON  
VIBRATORS Inc.**

**LUDINGTON, MICHIGAN**

*Setting new standards - everywhere...*



## **Transite Pressure Pipe and Ring-Tite Coupling speed water line assembly, lower installation cost**

IN COMMUNITY after community, proof that Transite® Pressure Pipe and Ring-Tite® Coupling speed water line assembly and cut installation costs is reflected in such contractor comments as these:

*"Exceeded by far, the speed anticipated under job conditions."*

*"Based bid on 400 feet a day, actually laid over 700 feet."*

*"Established an entirely new concept of installation savings."*

These new records for speedy installation have been accomplished despite adverse terrain, weather conditions and the presence of muck and mud in many of these locations. That is why, whatever your water line problem it will pay you to learn all about Transite's many advantages.

Write for the new Transite Brochure, TR-142-A, Johns-Manville, Box 60, New York 16, N. Y.



**Johns-Manville TRANSITE PRESSURE PIPE**  
THE ASBESTOS CEMENT PIPE WITH THE NEW RING-TITE COUPLING

## Consider Future Needs When Buying An Excavator



The machine a contractor buys today as a shovel, he might need as a crane tomorrow... or as a dragline, clamshell, or hoe. Because the contractor knows that under today's narrow margin conditions, it takes specialized equipment to handle profitably the

job at hand. Because of these changing needs and because equipment investment must be kept to a minimum, it is wise in buying an excavator to get one that is truly and easily convertible in the full sense of the word, not just one on which different booms can be hung.

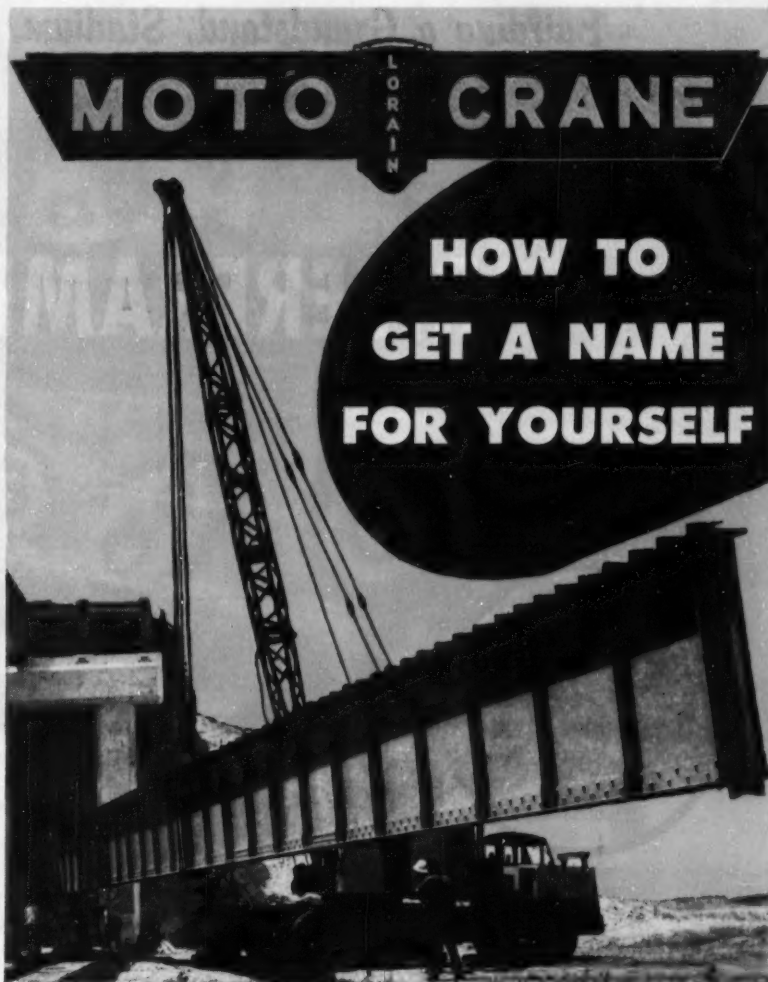
For example, a machine might be entirely acceptable as a shovel as originally built, but one day it is changed over to a crane by simply putting on a crane boom. That makes it look like a crane, anyway. But as a crane, it might have little stability over the sides, thereby severely reducing its lifting capacity for full circle operation, no precision boom lowering device for careful, precise boom control on steel erection, no power load lowering for inching down heavy loads. Possibly drum sizes cannot be changed with convenient lagging to vary line speeds and cable winding as needed. There may be no gantry for easy derricking of long booms, no boom harness and pendants to reduce reeving time when changing boom lengths. In other words, it isn't a crane that can be used as an efficient, money-making tool. It still is just a shovel with a crane boom hung on it.

Maybe the next job calls for a dragline. Well, hang on a dragline bucket and you're in business—or are you? What about a fairlead properly designed to work smoothly and efficiently to provide minimum drag-in cable friction and wear—and a “convertible” dragline boom head to provide large, centralized diameter sheave for longer cable life and to prevent off-center loads on the boom. How about lagging in diameter to put more pull on the drag-in; and more speed on the “hoist.” And how about “nosing-in” of the crawler. The proper length crawler can make or break a dragline job.

And so it goes for all the front ends. Each is designed to do a different job. And when used for those jobs most profitably, they should incorporate the features needed for the specific job at hand.

A truly convertible machine can be a wonderful investment for a contractor—can fit any job the contractor might do—today, next month or 10 years from now.

New business opportunities don't pass by the contractor who is prepared now to take advantage of any job that comes along—who has lower costs because of lower equipment investment—and who, when he gets on the job, has the proper equipment to fill the need—at the highest profit to him



The above name plate, which in itself, costs only pennies, is the most valuable thing you can buy on a rubber-tire crane... and it's a name that can build up your name among your customers for reliable, satisfactory results. It identifies a Lorain Moto-Crane\*—made by the company that, in 1918, originated the truck crane idea. It represents the most number of years of experience in building rubber-tire carriers to withstand the “live loads” created by shovel-crane use. It represents the greatest selection available in rubber-tire excavators in 7 different capacities from 6 to 45 tons, plus many choices in drives, engines and front ends. It represents the continual advancements in design that make the Moto-Crane\* still the last word in rubber-tire cranes. You need never “take a chance” when buying this type of equipment, because the name “Moto-Crane\*” on a rubber-tire crane is your assurance of a “profit-maker” whatever your needs. Regardless of the capacity for your job or the price you want to pay, check with your Thew Lorain Distributor on the Moto-Crane.\*

THE THEW SHOVEL CO., LORAIN, OHIO

\*A registered trademark of THE THEW SHOVEL CO

REMEMBER—IT ISN'T A  
MOTO-CRANE\* UNLESS  
IT'S BUILT BY . . .

**THEW  
LORAIN.**



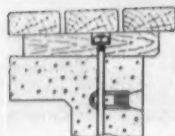
## Building a Grandstand, Stadium, Balcony?

# SUPERIOR RISERFRAMES Perform Two Functions

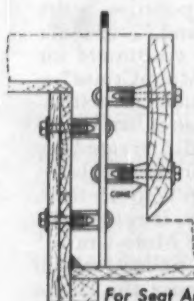


1  
Support, space  
and align  
front riser form.

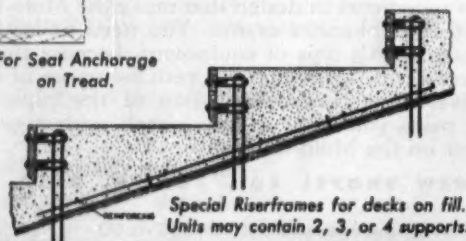
2  
Provide secure  
anchorage for  
seat brackets.



The advantages of Superior Riserframes have been demonstrated and proved in the construction of hundreds of grandstands, stadiums, and balconies of auditoriums and theatres.



For Seat Anchorage  
on Tread.



Special Riserframes for decks on fill.  
Units may contain 2, 3, or 4 supports.

The front riser form is accurately supported, spaced and aligned by the Riserframe to which it is secured by temporary coil bolts. After stripping, seat brackets are easily attached with permanent  $\frac{1}{2}$ " coil bolts which engage the coil sockets embedded in the concrete. For seat anchorage on treads, Riserframes with  $\frac{1}{2}$ " diameter cold rolled rods, threaded at one end, are used for the vertical connection as shown in drawing at left. A nut secures the metal bracket or wooden seat bolster. For decks on fill there are special Riserframe units as shown below.

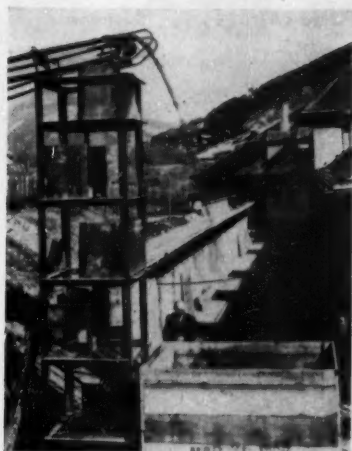
On your next job . . . use Superior Riserframes. There is a type of Riserframe for any possible job requirement. A preliminary layout and estimate will be prepared from your plans without charge or obligation. For additional details request a copy of our complete 60-page catalog.

## SUPERIOR CONCRETE ACCESSORIES, INC.

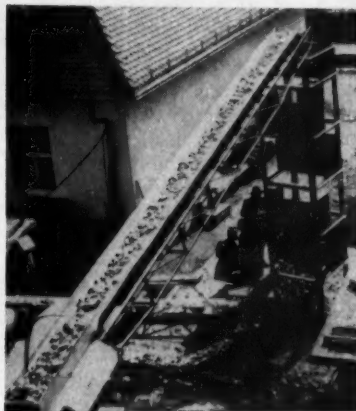
4110 Wrightwood Avenue, Chicago 39, Illinois

New York Office  
1775 Broadway, New York 19, N. Y.

Pacific Coast Plant  
2100 Williams St., San Leandro, Calif.



STONE LADDER 15 ft high drops selected stones over a series of steps to reduce the height of fall and eliminate breakage.



WOOD BOX collects free-falling stones and transfers them to belt-conveyor system for recirculating through 180 cycles.

## Stone Ladders Cut Breakage

CONTRACTORS WHO STOCK-PILE aggregates from overhead conveyors will be interested in recent tests proving the effectiveness of stone ladders in reducing breakage.

Tauernkraftwerke A. G., an Austrian power authority with several dams under construction in the Tauern Mountains, conducted a full-scale test to determine whether or not ladders materially reduce secondary breakage. Three short belt conveyors were set up on a hillside so that stone could be dropped through a 15-ft ladder or directly into a box. The conveyors

New . . .

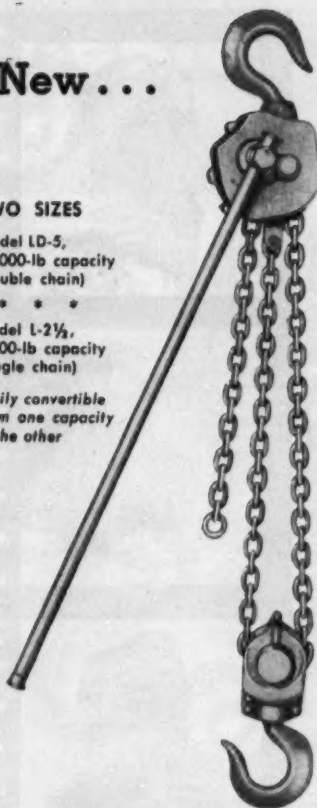
Different . . . Better

### TWO SIZES

Model LD-5,  
10,000-lb capacity  
(double chain)

Model L-2½,  
5,000-lb capacity  
(single chain)

Easily convertible  
from one capacity  
to the other



COFFING

**Super Power**

COIL CHAIN

### RATCHET LEVER HOIST

For over two years the entire production of Coffing's new Super Power Ratchet Lever Hoist has gone into military service. Now it is available to bring new standards of ratchet hoist performance to civilian users. These are just a few of the advantages this new hoist offers:

### SIMPLE in design

Parts are simple, rugged and few in number to assure continued top performance. May be disassembled in the field for fast, efficient servicing.

The only 5-ton hoist of this type using but two chains, contributing to faster operation and lighter weight.

### CONVENIENT to use

Handle adjustable for close-quarter applications — also may be operated from opposite side of hoist.

The 5-ton model weighs but 58 lb — lightest weight ratchet hoist in this capacity on the market.

Only 70 lb of handle pull needed to lift 10,000 lb with patented compound lever principle.

You get coil chain flexibility plus free chaining for quick adjustment.



### TOUGH for safety and dependability

Ratchets and pawls are specially hardened alloy steel — every load-holding ratchet is tested at 30,000 lb.

Housing is certified malleable iron to protect hoist from rust and damage.

Handle is designed to bend before hoist is overloaded beyond safe limits.

For full details,  
write for  
Bulletin D9L.

IN PUNISHING "DROP TEST," the Super Power had to withstand the shock of a 10,000-lb load dropped 4 in. — an impact load of over 40,000 lb. After several hundred such tests of Super Powers, there has never been a hoist failure!



**COFFING HOIST COMPANY • DANVILLE, ILLINOIS**

Originators of the Ratchet Lever Hoist

QUICK-LIFT ELECTRIC HOISTS • HOIST-ALLS • MIGHTY-MIDGET PULLERS • SPUR-GEAR HOISTS  
DIFFERENTIAL CHAIN HOISTS • LOAD BINDERS • I-BEAM TROLLEYS

Insurance costs  
too high?—

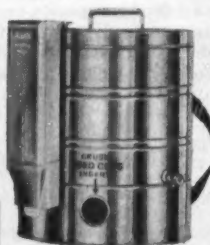
Want to **do something**  
about it?—

## As easy as taking a drink of water!

Right! Because the National Safety Council has confirmed that safety messages *that get read* (like the one on the crisp clean AJAX Cup this worker is using) definitely do help reduce accidents. And you know that fewer accidents result in lower insurance costs. So . . .

*Why don't you use AJAX Cups to put your safety messages right in your worker's hand—where he'll see them several times a day, at moments when he is relaxed, receptive, ready to read? And he'll really appreciate the comfort, convenience and complete sanitation of these easy-to-drink-from AJAX Cups, too.*

**AJAX® Cups and AJAX Drinking Water Tanks** deliver fresh cool water to workers—mean less time lost on the job. AJAX Cups and dispensers are also ideal for stationary tanks, barrels, pipeline faucets. 4 oz., 6 oz. and 7 oz. sizes packed imprinted with assorted stock safety messages—or your own message to order.



**GET THE FULL STORY—**Write us today for this new folder which gives full details on imprinted AJAX Cups and equipment.

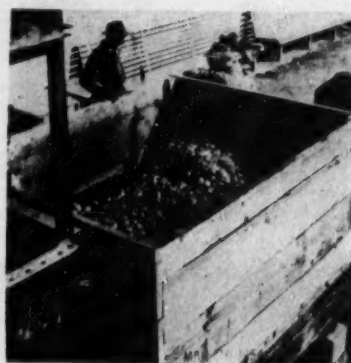


# United States Envelope Company

General Offices: • Springfield 2, Mass.  
15 DIVISIONS FROM COAST TO COAST

CS-C

## STONE LADDERS . . . Continued



**FREE-FALLING STONE** dropped from a 15-ft height shows considerably more breakage than stone carried down through a ladder.

circulated the stone as many times as desired.

Before the test, a quantity of 3 to 5-in. stone was carefully selected and divided into two parts. A screen analysis also was made. Then, one half of the material was run through the ladder 180 times, and the other half was dropped into the box 180 times.

At the end of the test, a second sieve analysis was made. The results showed practically no change in the stone that had been dropped through the ladder. The free-falling stone, however, had changed considerably. For instance, only 5 per cent of the free-falling material passed a 1-in. screen before the test and more than 35 per cent after. The test proved conclusively that stone ladders are effective in reducing breakage.

This information was organized by Theodore B. Appel, Jr., Chief Engineer of the C. S. Johnson Co., subsidiary of Koehring Co., with the assistance of Dr. Gatz of Tauernkraftwerke A. G.



THE UNITED WAY



# The Engineer's Report

CASE HISTORY

*RPM Tractor*

PRODUCT *Roller Lubricant*

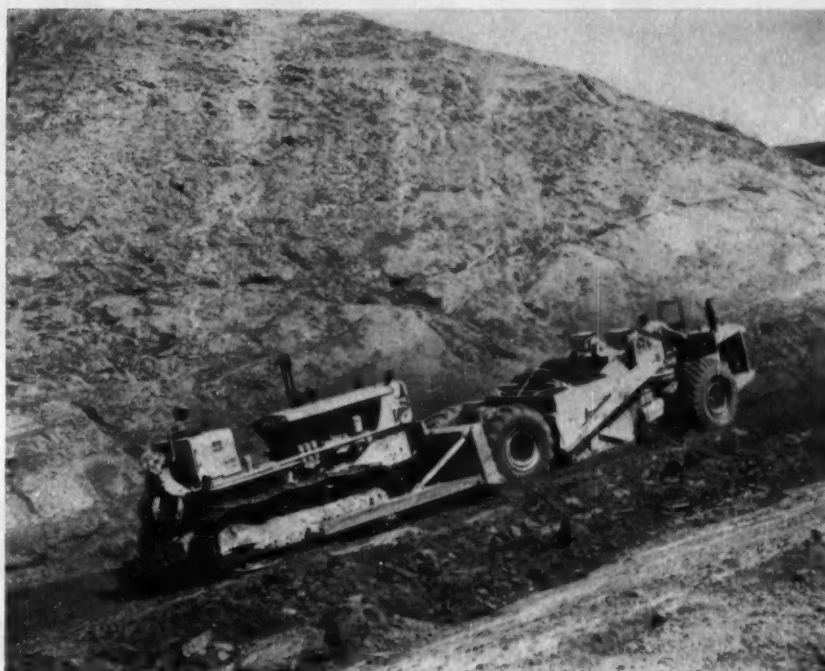
*J. Tomei and Sons,*

FIRM *Van Nuys, Calif.*

## Track bearings good after 10,550 hours' tough work!

WORKING IN GRITTY DIRT with much side-hill operation, a dozer like this went 10,550 hours on a single set of track rollers, lubricated exclusively with RPM Tractor Roller Lubricant. The rollers were then replaced, but only because flanges were worn off. The bearings themselves were still in good condition, even after such extended service.

J. Tomei and Sons, Van Nuys, California, have used only RPM Tractor Roller Lubricant in track bearings since 1937. They report it gives them service like this in all their equipment even though most work is building roads through the highly abrasive decomposed granite of Southern California. They find it helps seal grit out of the bearings, tends to float away any dirt that does get into them, and won't squeeze off under extreme loads.



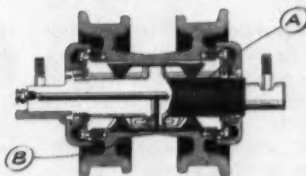
REMARKS: Three grades of RPM Tractor Roller Lubricant meet all climatic and operating conditions in Caterpillar-type track roller bearings. For Allis-Chalmers bearings, RPM Tractor Roller Lubricant A/C Type is recommended.

FOR MORE INFORMATION about petroleum products of any kind or the name of your distributor, write or call any of the companies listed below.



TRADEMARK "RPM" REG. U.S. PAT. OFF.

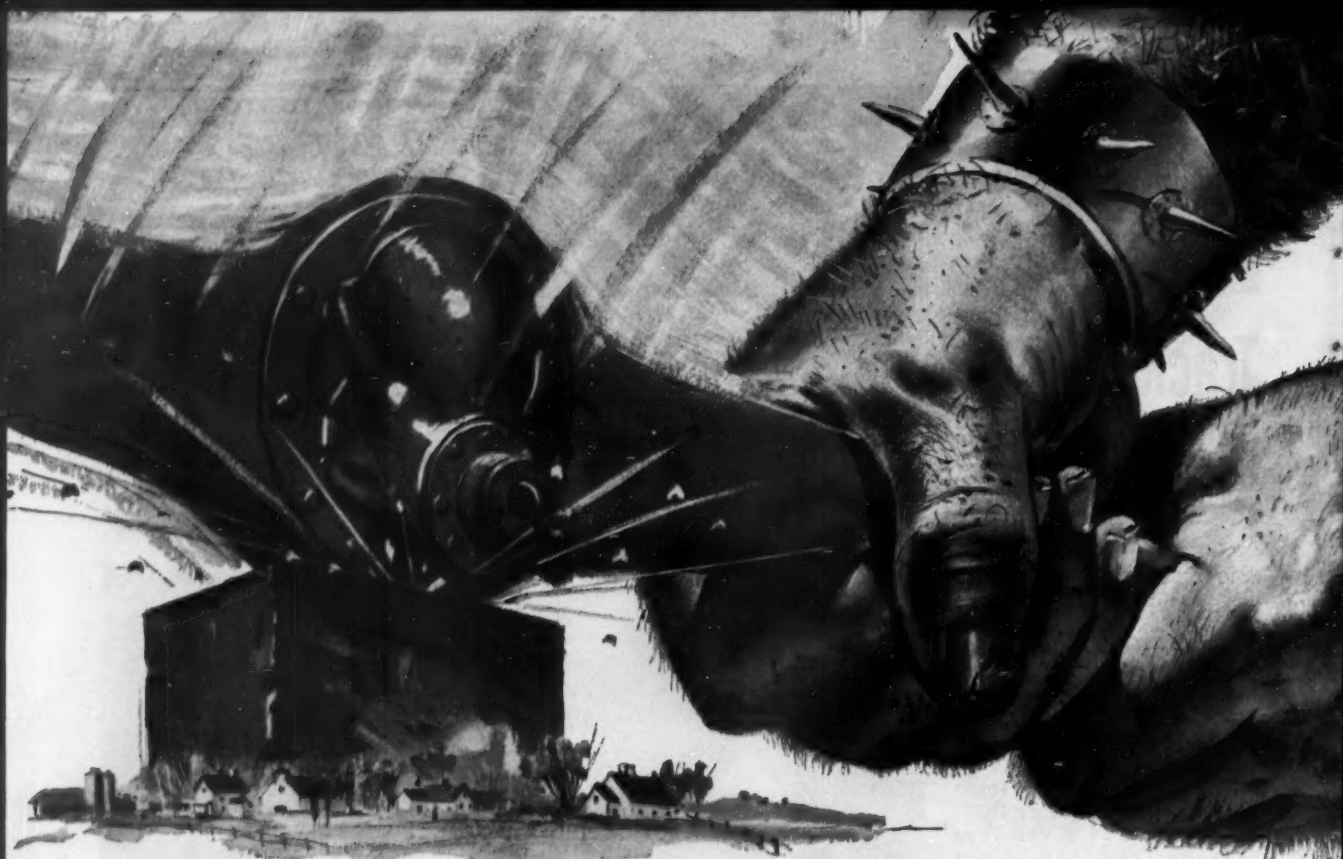
### How RPM Tractor Roller Lubricant resists wear in the toughest service



It flows evenly to all bearing surfaces, lubricates and retards rust formation.

- A. Contains chemical anti-wear agent—maintains tough lubricating film.
- B. Has stringiness compound—improved viscosity, resists leakage, helps keep protective grease seal outside bearings.

STANDARD OIL COMPANY OF CALIFORNIA, San Francisco 20 • STANDARD OIL COMPANY OF TEXAS, El Paso  
THE CALIFORNIA OIL COMPANY, Perth Amboy, New Jersey • THE CALIFORNIA COMPANY, Denver 1, Colorado



# We give truck axles a brutal

*in the new Timken-Detroit indoor proving ground*

**...and only Timken has it!**

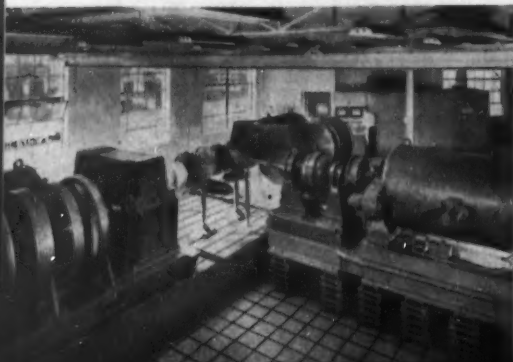
**We smash, twist, jerk and over-load them. Match every imaginable hauling situation. Then add a few ruinous tricks of our own.**

**It's done on purpose.** So we can tell you in advance that a Timken-Detroit axle can take a more brutal beating on the job it was designed for than any other axle made.

To prove it, we condensed a multi-thousand acre proving ground into one room. In it, our engineers can apply 50 years of experience in building axles for trucks, buses and trailers. Here axles

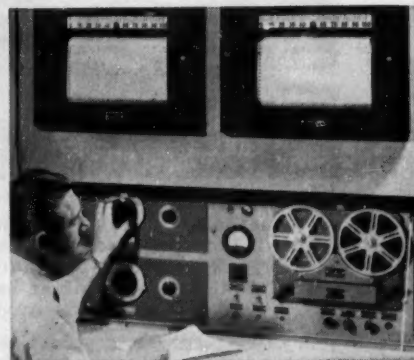
and gearing are subjected *indoors* to any possible *outdoor* hauling condition. Axle performance is measured and analyzed under absolute scientific control!

As a result: you enjoy longer axle life; less maintenance, repairs and downtime; lower operating costs; fatter profits. No wonder Timken-Detroit axles are the choice of manufacturers and owners everywhere!

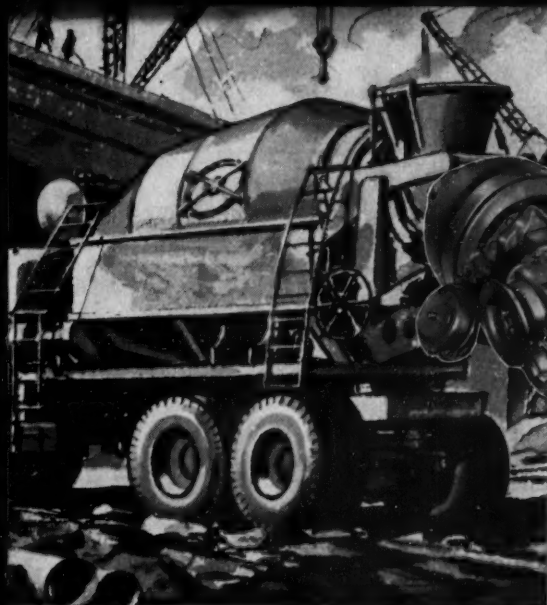


## How TDA proves axle quality in this "Torture Chamber."

We take one of our axles and put it on the "block" . . . then duplicate the roughest hauling condition, hour after hour, day after day . . . such as simulating 500,000 miles of toughest driving in just a few days. Or we "dream up" a test like going up hill with a full load at 45 m.p.h. from California to New York—*non-stop*. There is no other axle testing like it in the world!

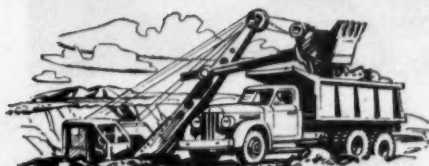


**This is our "truck driver."** He works in the "Torture Chamber." Above him are graphs showing speed and torque performance under any operating condition he chooses . . . soft ground at full load . . . mountains . . . express highways or side roads. With special dials, recorders and electronic devices, he actually *drives* the axle with scientific accuracy from his chair!



**Hauling wet mix?** You need Timken-Detroit axles—duplicates of axles that have been given the "works" in our indoor testing laboratory. Simulating the punishment the axle would get hitting a chuck hole with a capacity load every 4 seconds, 24 hours a day, month after month! And it's all done to save you money on maintenance and repairs—make you more money every load.

# beating



## TIMKEN *Detroit* AXLES

TIMKEN-DETROIT AXLE DIVISION  
ROCKWELL SPRING AND AXLE COMPANY  
DETROIT 32, MICHIGAN



**"TORTURE-TESTED"**  
**to Save Money on the Job**

WORLD'S LARGEST MANUFACTURERS OF  
AXLES FOR TRUCKS, BUSES AND TRAILERS

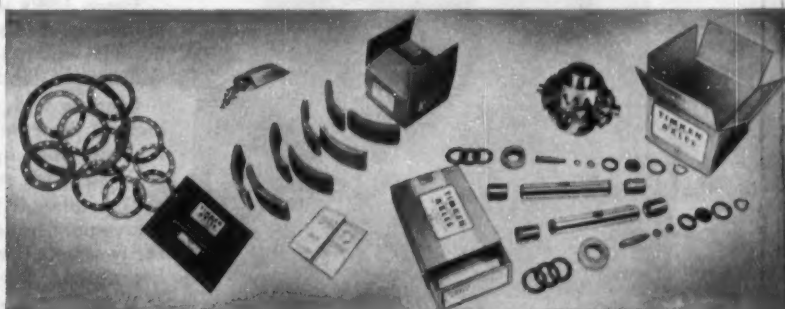


THREE TYPES: Hypoid-helical double-reduction, optional inter-axle differential. Worm drive, without inter-axle differential.

### For six-wheeler operation . . . the TDA Tandem Drive Rear Axle Unit

Now—the world's finest tandem drive rear axle unit for heavy-duty motor trucks! And with these features, developed, introduced and pioneered by TDA: (1) Available in 3 types of final drives and 3 capacities. (2) Top-mounted straight-line final drive eliminates propeller shaft angularity. (3) Optional inter-axle differential . . . spur gear design, cab-controlled power-lockout. (4) Torsion flow axle shafts . . . guaranteed for 100,000 miles or three years, whichever occurs first. (5) Hot forged steel axle housing . . . guaranteed for the life of the vehicle. (6) Unit-mounted "P"

series power brakes . . . for longer life, greater economy and efficiency. (7) Cradle ride spring suspension and paralleled torque rod system . . . maintain correct alignment and weight distribution regardless of driving and braking conditions. (8) Exclusive two-piece trunnion tube bracket speeds servicing. (9) Removable torque rod and spring guide brackets . . . for positive alignment, easier replacement. (10) Rubber torque rod bushings and rubber spring seat bushings . . . eliminate metal-to-metal contact. Require no lubrication.



### Increase axle life with Genuine TDA Equipment Parts

Take no chances with ordinary replacement parts. For sure, dependable factory-type jobs, look to genuine Timken-Detroit axle parts kits—identical to your axles' original equipment.

Each kit is complete—gives you everything you need—in

one handy package. Gaskets and shim parts, brake liners, steering knuckles, differential gears—for every size of brake and axle. Order by number from your dealer. Cut labor and adjustment costs. Get trucks back on the road quicker!

Plants at: Detroit, Michigan • Oshkosh, Wisconsin • Utica, New York • Ashtabula, Kenton and Newark, Ohio • New Castle, Pennsylvania



# LOAD 'EM FULL



Eimco 105's with excavator attachments dig in forward motion and discharge overhead to the rear. Standard models will load ordinary trucks, high discharge models will easily load high railroad gondolas.

Loading with Eimcos is fast — from stock pile it's easy to load at the rate of 400 yards an hour. Digging unbroken material such as conglomerate or hard clay will net 1000 to 1200 yards per 8 hour day average.

Operating a 105 is easy, even for untrained personnel. Convenient handles are pushed for forward motion, pulled for reverse. There are no complicated gear shifts, clutches, brakes, etc., for the operator to manipulate.

It pays to use haulage equipment to its maximum rated capacity — an Eimco will load it full, quickly, efficiently.

Let us show you an Eimco in action! Write for more information.

## THE EIMCO CORPORATION

Salt Lake City, Utah, U.S.A.  
Export Office: Times Bldg., 22 South St., New York City

New York, N. Y. Chicago, Ill. San Francisco, Calif. El Paso, Texas Birmingham, Ala.  
Detroit, Mich. Kellogg, Minn. London, Eng. Paris, France Milan, Italy



## SALES AND

## \* SERVICE \*

News of manufacturers' activities designed to assist the reader in the purchase of machinery, equipment and materials and help him obtain quick service on parts and maintenance.

### Distributor Appointments

**Bucyrus-Erie Co.:** Euclid Sales and Service, Inc., St. Louis, Mo., now offers sales and service on Bucyrus-Erie excavators and cranes in eastern Missouri and west central Illinois.

**The Gallion Allsteel Body Co.:** Truck Equipment Co., Atlanta has been appointed Georgia distributors of hydraulic hoists and dump bodies. Hoists, bodies and Gallion Allsteel LOAD-evator hydraulic end loaders will be stocked for immediate deliveries.

**Worthington Corp.:** Construction Equipment Co., 457 Windsor Ave., Wilson, Conn., has signed as distributor for construction equipment line in Conn. Will handle portable compressors, rock drills, and air tools, accessories, concrete machinery, truck mixers and bog mixers, pneumatic concrete placers and portable contractors pumps.

**W. A. Riddell Corp.:** Newly appointed distributor for WARCO motor graders is Nelson Equipment Co. with sales and service headquarters in Portland, Ore., and a complete branch operation at Seattle, Wash.

**Hell Co.:** The Roadway Mounting and Equipment Co., 21177 Mound Road, Van Dyke, Mich., has been appointed a distributor of Hell truck bodies and hoists in the territory including the counties of Monroe, Washtenaw, Wayne, Oakland, Macomb, and St. Clair.

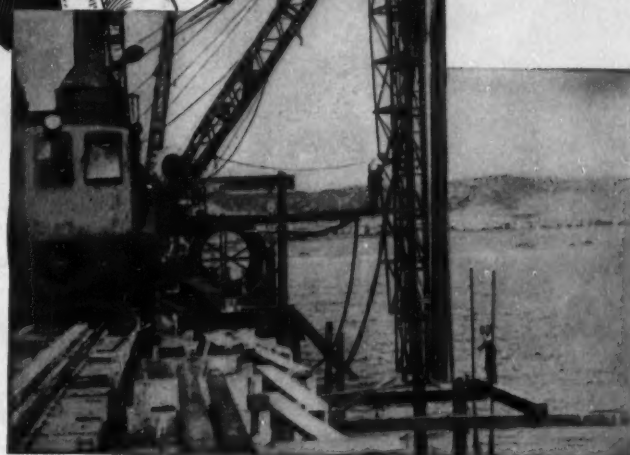
**Warner & Swasey Co.:** Gradall Div. announces appointment of the Construction Equipment Co. of Birmingham as distributor for the state of Alabama and northwestern Florida. The Construction Equipment Co., is headed by R. F. McCullough, president, maintains a headquarters office at 2921 2nd Ave., S., Birmingham, Ala., and a branch office in Mobile.

**The Cleaver-Brooks Co.:** Announces appointment of Harold R. White Co., Baltimore, Md., as manufacturer's representative for the sale of Cleaver-Brooks boiler equipment in Wash., D.C., western Maryland, northern Virginia and Berkeley, Jefferson and Morgan Counties in West Virginia.



## THIS Washerless COUPLING

has no equal for convenience, efficiency and durability in every high or low pressure hose service . . . steam, gas, air, water, hydraulic.



## "GJ-BOSS" *Ground Joint* *Female Coupling, STYLE X-34*

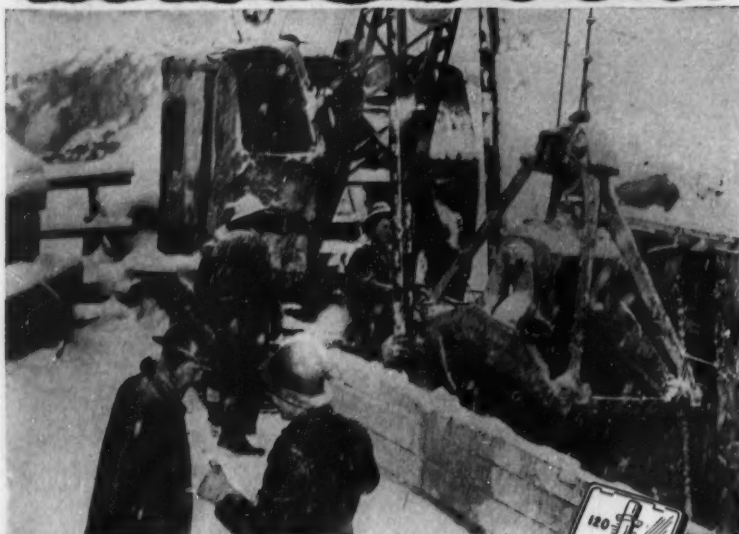
The original washerless hose coupling, with a reputation for safe, reliable service under hard use and rough handling. Ground joint union between stem and spud provides leakproof, trouble-free seal. All parts malleable iron or steel, rustproofed. Furnished with "Boss" Offset and Interlocking Clamps. Sizes 1/4" to 6", inclusive.

Stocked by Manufacturers and Distributors of Mechanical Rubber Goods

# DIXON *Valve & Coupling Co.*

GENERAL OFFICES & FACTORY—PHILADELPHIA 22, PA. BRANCHES—CHICAGO  
BIRMINGHAM • LOS ANGELES • HOUSTON • DIXON VALVE & COUPLING CO., LTD., TORONTO  
ASSOCIATE COMPANIES: DIXON COMPANY, INC., QUAKERTOWN, PA. • PRECISION DRAWN STEEL COMPANY, CAMDEN, N.J.

# Frosty



at **HUNGRY HORSE  
DAM**



In a majority of "run-of-the-mine" jobs and most of the exceptionally noteworthy projects you'll find Owen Buckets handling important digging and material handling operations.

That is true whether it is a bridge abutment, a dam foundation, caisson work, deep trenching, aggregate handling or "what have you."

The Hungry Horse Dam is an example. Thirty degrees below zero weather didn't stop operations or hinder this Owen Bucket in performing the desired service required in deep down digging of frozen clay, shale, etc.

You, too, can depend on Owen.



**THE OWEN BUCKET CO.**  
6020 Breakwater Ave., Cleveland 2, Ohio

## SALES AND SERVICE . . .

Continued

**W. A. Riddell Corp.:** Vermont Road Equipment Co. is newly appointed distributor for WARCO 4D-85 and 4D-115 motor graders in the state of Vermont.

**Koehring Co.:** W. L. Johnson Machinery Co., Midland, Tex. has been appointed distributor of Koehring and Kwik-Mix (Koehring subsidiary) products in all counties west of and including Lipscomb, Hemphill, Wheeler, Collingsworth, Childress, Cottle, King, Stonewall, Fisher, Nolan, Runnels, and Concho. Also it will serve counties north of and including Loving, Ward, Crane, Crockett, Irion, Tom Green and Concho.

### On the Sales Front

**Rockwell Spring and Axle Co.:** Robert M. Hays, vice-president, Timken-Detroit Axle Div. announces appointment of Howard H. "Buck" Buckingham as Midwest and Southwest trailer axle sales representative.

**Baldwin-Lima-Hamilton Corp.:** Construction Equipment Div. announces the appointment of John G. Watson, 2219 Chastleton Drive, Michigan City, Ind., as district manager for the territory including the Calumet district in Indiana, Illinois, Missouri, Kansas and lower Michigan.

**Hyster Co.:** Boris J. Glavash has been named head of the newly created European division of the export sales department in Nimjmegen, The Netherlands, where a new overseas factory was recently established.

**Atlas Powder Co.:** Announces appointment of George T. Errickson as special representative, Explosives Dept., covering all pipeline construction work in the United States. Mr. Errickson will work with W.C. Davis, assistant director of sales, and W.T. Mahood, manager of the contractor's division in the Wilmington general office.

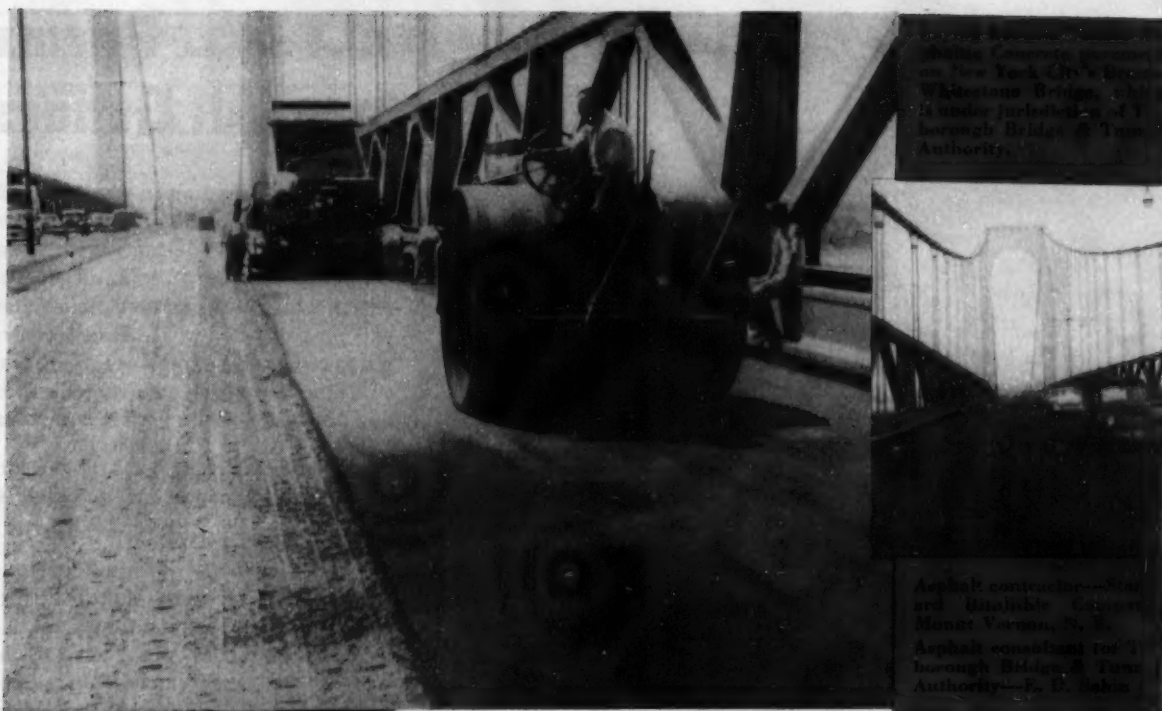
**Harnischfeger Corp.:** B. Pratte, general sales manager, Milwaukee, Wis., announces the appointment of two district managers in the Philadelphia office. They are: W. R. O'Malley, manager, overhead cranes and hoists; and John J. Moran, manager of P&H excavators.

**Blaw-Knox Co.:** Announces appointment of John Pendergast as domestic sales manager of its Foote Construction Equipment Div., Nunda, N. Y.

**Iowa Manufacturing Co.:** At a recent meeting of the Board of Directors, A. C. Gossard was elected vice-president, domestic sales manager.

(Continued on page 165)





Close-up of exposed steel grid in bridge floor and the new Texaco Asphaltic Concrete wearing surface.



Spreading seal coat of asphalt-treated stone dust while the asphalt pavement was being rolled.

## Traffic will average 75,000 vehicles a day on this resilient Texaco Asphalt pavement

The Bronx-Whitestone Bridge links two of New York City's five boroughs, Bronx and Queens. More than 23,800,000 vehicles crossed the bridge last year, a daily average of 65,000, with a 24-hour peak of 114,000 cars and trucks.

During July of this year, a hot-mix Texaco Asphaltic Concrete wearing surface was constructed on this bridge. Careful planning of working hours resulted in a minimum of inconvenience to traffic. Prior to laying the new asphalt surface, the existing pavement was chipped off down to the steel grid in the bridge floor, as shown by the photos. The resilient asphaltic concrete surface was then laid to a compacted thickness of 1½ inches.

It was essential that the new pavement be opened to traffic immediately after it had been rolled. Application of a seal coat of asphalt-coated stone dust during the rolling operation eliminated any tackiness.

The answer to your own paving problem may be a heavy-duty pavement of the hot-mix Texaco Asphaltic Concrete type, or it may be one of the low-cost Texaco Asphalt surfaces designed for secondary roads and streets. Texaco Asphalt Cements, Cutback Asphalts and Slow-Curing Asphaltic Oils offer the road builder a variety of answers to the paving problem. Helpful information regarding all of these types is supplied in two booklets which you can obtain without obligation by writing our nearest office.



THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17  
 Boston 16 • Chicago 4 • Denver 1 • Houston 1 • Jacksonville 2 • Minneapolis 3 • Philadelphia 2 • Richmond 19

# TEXACO ASPHALT



## Here's Why HELTZEL Forms Outperform All Others

It takes more than a bending press and a welding torch to build practical, serviceable concrete forms. You've got to know concrete pouring and design for fast form set-up and quick stripping. You've got to know steel to design a form that can take punishment without being heavy and bulky. You've got to have wide experience in the construction field to design a versatile form that can cover a variety of installations.

The form must have strength, be easy to use, hold alignment under the most difficult conditions and deliver maximum wear.

These are a few of the reasons why formsetters and contractors alike **prefer Heltzel Forms**. Heltzel has almost 50 years experience in designing and building metal forms for construction use. Many of the features of the modern day form were developed by Heltzel engineers. And why not? They're the most experienced designers and builders of forms in business today.

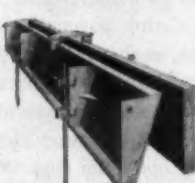
That's why **Heltzel Forms** consistently outperform all others. That's why it's just smart business to make certain, when purchasing form equipment, you check first with the Heltzel representative nearest you. If you're not familiar with him write direct and we'll send his name and address by return mail together with the latest literature on Steel Forms.

Rigid Radius  
Curb and Gutter Forms

### A Few Examples of HELTZEL Curb and Curb and Gutter PerFORMers..



Interchangeable Face  
Curb and Gutter Forms



Battened Face Dowel  
Joint Curb Forms



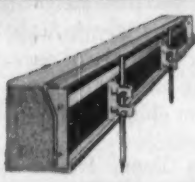
Straight Face Dowel  
Joint Curb Forms



Rigid Radius  
Curb Forms



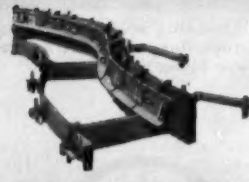
Two-Piece  
Front Curb Forms



Single Piece  
Front Curb Forms



Flexible Radius  
Curb and Gutter Forms



Flexible Radius Forms  
For Any Special Job

## HELTZEL STEEL FORMS

THE HELTZEL STEEL FORM AND IRON COMPANY  
8700 THOMAS ROAD WARREN, OHIO



## SALES AND SERVICE

Continued from page 162

**Motorola Communications & Electronics, Inc.:** Eugene S. Gobel, national sales manager, has named Donald F. Brickley manager of the company's Region 1, covering the states of Idaho, Montana, eastern Nevada, Washington, Wyoming and Utah.

**The Gorman-Rupp Co.:** Kenneth H. Cadigan, vice-president in charge of sales announces the appointment of the following district representatives: Donald L. Sanders for Ohio, West Virginia, Virginia, Pennsylvania, New York and parts of Kentucky; Richard M. Fraser for northeastern United States and Ted C. Bauck for five states in the Midwestern area.

**Hyster Company:** Charles P. Gruet is new Northeast district representative for the Hyster line of tools and attachments for Caterpillar built tractors.

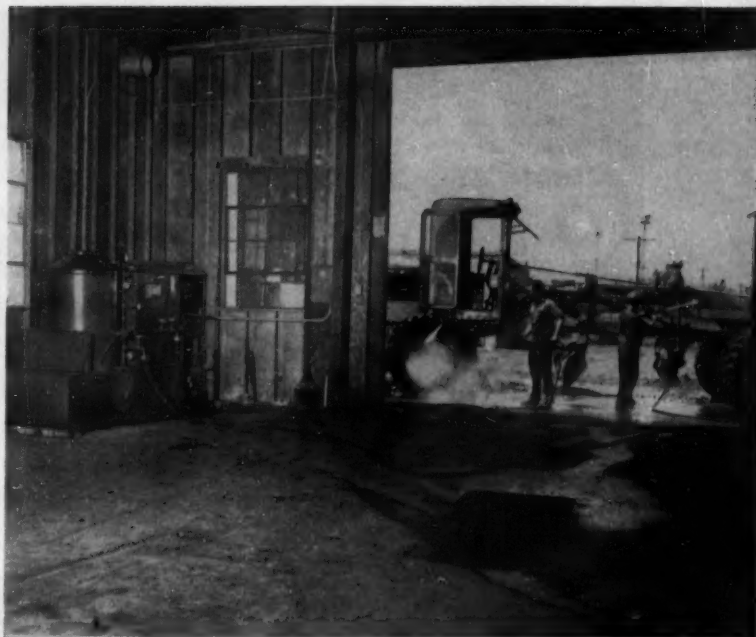
**LeTourneau - Westinghouse Co.:** James T. Barron has been appointed a district sales representative for a territory covering the western and southwestern states. H. W. Murphy, district sales representative, who has been serving the territory now assigned to Barron, has been transferred to the Texas Oklahoma territory.

**American Hoist and Derrick Co.:** The appointment of Ray J. Dervay as general sales manager has been announced by John E. Carroll, president.

**H. K. Porter Co.:** L. Jack Clarke has been appointed general sales manager of the Leschen Wire Rope Division, H. K. Porter Co., Inc. He will make his headquarters at the division main offices in St. Louis.

**Le Roi Co.:** James R. Harwood has been appointed sales manager of the Transo Division which manufactures and sells rubber-tired front-end loaders and truck-mounted concrete mixers.

**John A. Roebling's Sons Corp.:** Edwin F. Whitehill of Jackson, Mich. has been appointed Cleveland district manager for the Wire and Cold Rolled Products Division. Roebling is a wholly owned subsidiary of the Colorado Fuel and Iron Corporation. The new Pacific manager of the firm's construction materials division is Robert J. Cole, who will direct the sale of Roebling wire and stranded steel products for prestressed concrete use. His offices will be at the corporation's San Francisco district headquarters, 1740 17th Street.



MALSBARY 322 steam cleaner, with two guns in use simultaneously, blasts grease, road oil and mud from Caterpillar No. 12 Grader in a hurry.

## What Size Steam Cleaner Should You Use?

L. G. Defelice & Son, Inc., nationally-known contractor keeps his MALSBARY 322 HPC cleaner busy 10 hours daily, 6 days a week, maintaining this fleet in work trim:

30 D8's	12 DW20's
8 DW21's	4 Northwest shovels
70 trucks	15 compressors

If you have a large fleet like this, heavy, sticky road tars, thick mud and greasy dirt, enough cleaning to keep one man or more busy full time, then you need a MALSBARY HPC cleaner. HPC (patented) = high pressures to 400 lbs. combined with either hot solution to 325° F., cold water, or steam.

If your work calls for intermittent cleaning, or only two to three hours cleaning at a time, chances are a MALSBARY steam vapor cleaner will handle your job very well.

**Why HPC Cleans Better, Faster**  
MALSBARY HPC cleaners use pumps instead of steam for pressure. They can produce: (1) cold

water to 400 lbs. for fast removal of caked dirt and mud; (2) hot solution at 325° F. and 150-250 lbs. for cleaning away grease and road oils; (3) hot water at 250-325 lbs. to de-ice equipment or soften caked mud; (4) warm water for hand washing trucks, tractors, etc.; (5) wet steam for degassing tanks and for heating use. Models 300 and 500 operate two or more guns simultaneously, one delivering high-pressure cold water, the other high-pressure hot solution—a real time saver on big rigs and fleets.

### Ask for Demonstration

Ask your MALSBARY jobber NOW to recommend and demonstrate the right size cleaner for your job...or write TODAY for Catalog 150-R, which describes the entire MALSBARY line. 53



Room C9, 845 92nd Avenue Oakland 3, Calif.





## Thermoid Industrial Brake Linings put more "STOP" in your brakes!

Whether you need a light duty lining or a heavy duty brake block for extreme service conditions, you'll find a Thermoid product with the friction you require. You'll find that your maintenance costs and "down time" are held to a minimum because Thermoid Industrial Linings provide smooth positive braking *plus* extra long life.

When you need Brake Lining, or Brake Blocks, be sure to get Thermoid—choice of leading construction equipment manufacturers.



*Thermoid's outstanding line of friction materials is also available in a complete line of woven, molded and special type clutch facings for all construction applications. Ask your supplier.*

# Thermoid

**Thermoid Company**  
Industrial Friction Materials Division  
Trenton, N.J.

### SALES AND SERVICE

*Continued*

**Joy Manufacturing Co.:** The new manager of sales engineering, Core Drill Division, is Frank M. Capp who succeeds the late J. B. Martin in this position.

**D. W. Onan & Sons, Inc.:** Announces appointment of Charles J. Helmholtz, as Direct Factory Sales Engineer, covering New England states.

**Quaker Rubber Corp.:** G. A. Dauphinais, vice-president and general manager announced the appointment of W. H. Pender as manager, belting sales, Quaker Rubber Corp., division of H. K. Porter Co., Inc., Philadelphia 24, Pa.

### In the Main Office

**Iowa Manufacturing Co.:** At a recent meeting of the Board of Directors, Howard Hall was elected president and Kenneth Lindsay executive vice-president, director of sales and advertising.

**Insley Manufacturing Corp.:** The board of directors announces the following changes in the officers of the corporation: William B. Elliott, now president will become chairman of the board; James R. Elliott, now executive vice-president, will become president; William T. Elliott, will become executive vice-president.

**Quick-Way Truck Shovel Co.:** Louis T. M. Ralston, president of Industrial Brownhoist Corporation, has been elected president of this company. New chairman of the board is Oscar L. Chapman of Denver. Luke E. Smith will continue as consultant.

### Special Mention

**Blaw-Knox Co.:** An approved parts and service department for expediting shipment of replacement parts to customers of the construction equipment division is now in full operation at Springdale, Penn. under the management of S. M. (Jack) Pare. Warehouse employees are headed by John R. Selleck, foreman, and M. J. Varley, shipping manager. Clifford Croft is inspector charged with examining every incoming part before storage and on the shipping platform prior to packing.

**LeTourneau - Westinghouse Co.:** A western depot, to handle emergency parts requirements of distributors in Calif., Oregon, Washington, Arizona, Nevada, Utah and Idaho and British Columbia, has been established at Emeryville, Calif. The address is 1545 Park Ave.



## an example: \$10,000 saved with the new AMSCO LEADER AUTOMATIC ELECTRIC WELDER

**Pioneered by Leader ...  
Purchased by Amsco ...  
Proved by years of field use ...**

Maybe you've seen it work . . . know from firsthand experience the economies it effects. It's not new to mining and construction superintendents—they *proved it*. But in case you don't know about it, here's what it meant to one construction outfit.

Operating five large track-type tractors each with 12 bottom rollers, 4 carrier rollers, 156 track links, 78 grouser pads, 2 idlers,

2 sprockets and one dozer blade, replacement cost was figured to be approximately \$13,800. Rebuilding these parts with the Amsco Leader cost approximately \$3,700 or a saving of about \$10,000. Plus the fact that the rebuilt parts gave nearly double the service life of new parts.

See your local Amsco Distributor, today. Ask him for complete details on the Amsco Leader. Ask for a demonstration. Take home the descriptive literature. See for yourself how a new Amsco Leader can save you thousands of replacement dollars.

**Brake Shoe**

**AMERICAN MANGANESE STEEL DIVISION**  
Chicago Heights, Ill.

# CONSTRUCTION EQUIPMENT NEWS



## International TD-6 Conversion

The Garrett All-Drive machine is actually a factory approved conversion of an International TD-6 tractor using 80% International parts. It's rated at 30 hp with speeds up to 8 mph. Its weight of 13,060 lb with winch, bulldozer blade and canopy, eliminates counterweights, wheel weights, etc. to get increased traction. It's claimed it has speed and economy of rubber-tired tractor and crawler type pulling power by using 4-wheel drive.—Garrett Distributors, Enumclaw, Wash.



## Portable Concrete Tester

This 200,000-lb capacity portable machine will test concrete and similar material with laboratory accuracy. Loads are developed by hand-operated, 2-speed concentric pump.—Soiltest, Inc., 4520 W. North Ave., Chicago, Ill.



## One Man, Centered Cab Truck

This cab is available as an attachment on most International four- and six-wheel trucks. The cab, 50 in. in width, permits balanced carrying of lengths of steel, pipe or lumber, longer than the over-all length of the trucks themselves. Carrying space is 21 in. wide on both sides of cab. The cab has a hatch in the roof that may be opened from inside or out, in case both doors are blocked by the load.—International Harvester Co., 180 N. Michigan, Chicago, Ill.



## 20-Ton Dart Truck

Short wheelbase (120 in.) and high hp (225 or 275) and 21 ft turning radius feature the latest Dart end dump 20-ton trucks.—Dart Truck Co., Kansas City, Mo.



## No Clutches on This Trojan

The model LH-75  $\frac{3}{4}$ -yd Trojan Loadster, has eliminated all clutches. It uses a direct drive from the engine through torque converter coupling to transmission.—Contractors Machinery Co. Inc., Batavia, N. Y.



# On-the-Job Previews of Machinery, Tools and Equipment



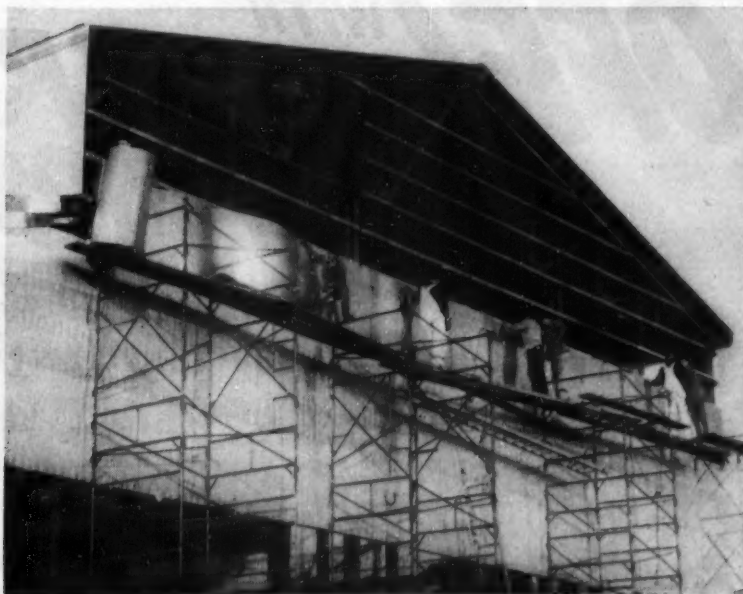
## Bucyrus-Erie 15-Ton Transit Crane

Designed to handle fast and efficiently many types of work now considered too small or restricted for profitable operation is this new Bucyrus-Erie mobile crane-excavator with 15-ton lifting capacity. It's powered with 138-hp White gasoline engine and has 170-in. wheelbase. It can be converted to  $\frac{1}{2}$ -yd shovel.—Bucyrus-Erie Co., South Milwaukee, Wis.



## Improved Hopper Conveyor

The Hopper Conveyor for backfilling curbs, trenches and road widening work has had wheel spacing widened to 9 ft  $5\frac{1}{2}$  in. and the front edge of the hopper lowered to permit use with any size and style of dump body. A clutch and reduction gear assembly is a part of the engine that powers the conveyor.—Power-Pack Conveyor, Cleveland, Ohio.



## Aluminum in Rolls

Cross corrugated aluminum roll roofing and siding is a new development in the metal building materials field. It's available in various gages, widths and lengths. Side laps are eliminated and it's easy to apply. The rolls come in standard lengths, of 50, 100 and 200 ft and have only one-third the weight of steel. Installation time is said to require only  $\frac{1}{4}$  to  $\frac{1}{2}$  time needed for other types of roofing and siding.—Quaker State Metals Co., Lancaster, Pa.



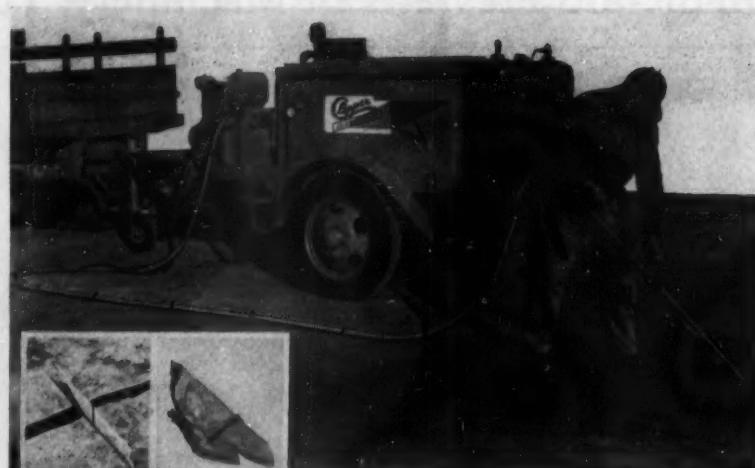
## Galion Now Has New Drive

A combination of fluid drive and torque converter which automatically multiplies engine driving force is now incorporated in the Galion tandem rollers. According to the manufacturer, tests have  
(Continued on page 170)

proved savings in fuel up to 25%. Rolling speeds are from .8 to 5.5 mph. Galion tandem rollers with clutch and gear with either gasoline shift drive or diesel power are still available.—Galion Iron Works & Mfg. Co., Galion, Ohio

**NEW ½-YD. SHOVEL**—The new Model 155 P&H ½-cu yd crawler machine is an all-purpose unit. It is fully convertible to shovel, hoe, clamshell, dragline, crane and magnet, with all front-end attachments engineered for fast, simple change-over. The new unit is of simple power-box construction which contains all driving machinery in a minimum of space. This power box is so sturdily built it actually forms the machine frame and supports all shafts, drums, engine, weights and work attachments. Power may be either gasoline or diesel. Additional details and complete specs on this P&H Model 155 are given in Bulletin X-149 just released. — Harnischfeger Corp., 4603 W. National Ave., Milwaukee 46, Wis.

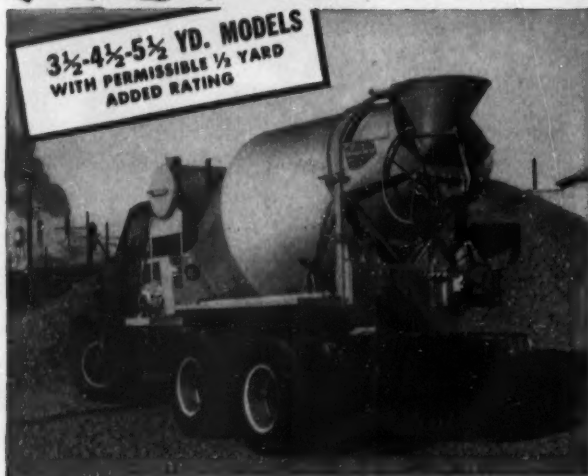
**JOINT SEALER** — Here's a joint sealer that completely fills a ¼-in. sawed contraction joint, top to bot-



tom and 3 in. deep in one continuous operation. It combines in one compact unit all the equipment necessary for properly melting the sealing compound and for its correct application under controlled pressure. It will seal at the rate of 2 mi per day. The heart of this clipper joint sealer is an oil-jacketed, tube-fired, double-boiler kettle designed for the fast and safe heating of rubber base asphalt compound. The trailer-type unit complete with yoke is mounted on heavy-duty automotive axle as-

sembly for towing and complete maneuverability. Heating is accomplished by multiple horizontal torch-type burners using bottled propane gas from two 15-in. containers mounted on the rear of the kettle. Kettle capacity is 165 gal, and the melting production rate is 40 gal per hr. Outstanding of the new features incorporated in this clipper joint sealer is the newly developed applicator bar, tipped with special alloy heat-treated steel nozzles in  
(Continued on page 173)

# PAYS OFF WITH BIGGER PAYLOADS



**RUGGED!** loaded with **MONEY-MAKING** FEATURES yet **LOW PRICED & LIGHT WEIGHT**

- Easier to handle on the road and on the job.
- Thoro-Mix action. Mixes and discharges all slumps.
- Simplest of all. No maintenance or service problems.
- Now available as - 3½ - 4½ - 5½ yd. mixer.

Construction Machinery Co's., Waterloo, Iowa

# TRANSCRETE TRUCK MIXERS

# "Our entire fleet is lubricated with Union Oil products..."

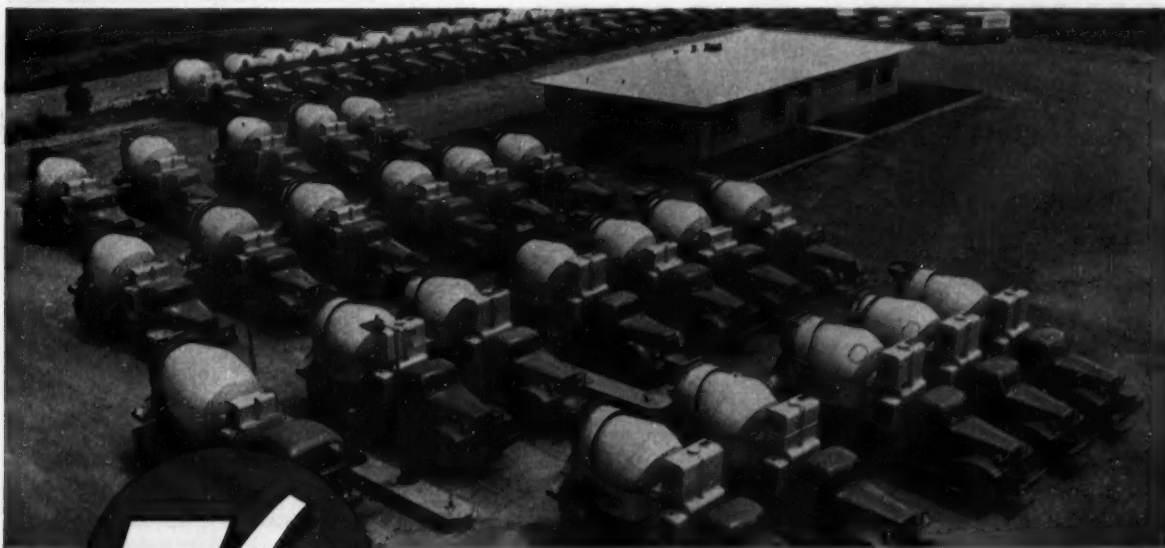
S. H. Moore, Manager, San Diego Transit-Mixed Concrete Co., San Diego, California



"The 47 transit-mix trucks in our fleet pile up an average of 750,000 miles per year, while our 14 tractor and double-trailer cement hauling units cover about 450,000 miles.

"We maintain tight delivery schedules year 'round over rough, dusty terrain as well as in heavy traffic areas. Our entire fleet is lubricated with Union Oil products, and has been for the past 14 years. That we have had absolutely no mechanical difficulties due to failure of our lubricants speaks volumes for Union's oils and greases, used 100% at San Diego Transit-Mix."

Union Oil Company products are *the finest* by far for your equipment, too. Call your Union Oil representative for a survey of your lubrication requirements. His recommendations can save time and money on every job.



## UNION OIL COMPANY OF CALIFORNIA

LOS ANGELES: Union Oil Bldg. • NEW YORK: 45 Rockefeller Plaza • CHICAGO: 1612 Bankers Bldg. • NEW ORLEANS:  
644 National Bank of Commerce Bldg. • ATLANTA: 491 Atlanta National Bldg. • KANSAS CITY, MO.: 921 Bialto Bldg.





Figure 1. 1178-ton steel framework for new Ainsley Building, Miami, Florida. Design engineers: Oboler and Clarke, Miami Beach. Steel Fabricator and erector: Ludman Steel Company. Architect: Morris Lapidus, New York and Miami Beach. General Contractor: Robert L. Turchin, Inc. Miami Beach.

## WELDED STRUCTURAL DESIGN SAVES STEEL... CUTS COST ON MULTI-STORY FRAMEWORK

**A**N estimated 120 tons of steel has been saved through welded design in the construction of this 14 story framework. This building, 140 feet across the front and 90 feet on the sides, is considered to be the largest all-welded multi-story structure in Florida.

Designed to withstand 50 pounds per square foot of hurricane winds, beams have semi-rigid end connections with top plates field butt welded to columns and welded to the top flanges of the beams.

The welding crew of nine men worked just behind the steel erectors. Both shop prefabrication and field erection were welded with Lincoln "Fleetweld 5" for quality, high strength connections in flat and vertical positions. Only ten weeks were required to complete the framework.

### WRITE FOR INFORMATION

Complete descriptions and specifications of Lincoln "Shield-Arc" welders are in Bulletin 13 37. Write on your letterhead.

## SIMPLIFIES ERECTION



Figure 2. Close-up of connections between beams and column reveals how continuity of section is achieved through web stiffeners on column. Shop welded seat angles take shear loads.

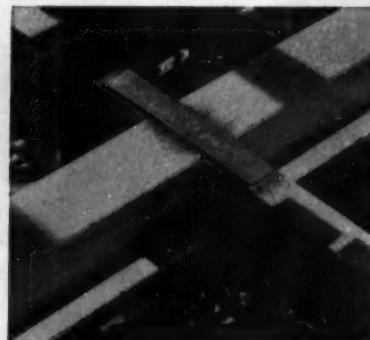


Figure 3. Top flanges of filler beams are connected by strap plates over the girder, while lower flanges are butt welded to the web on both sides. Wide flange structurals are used throughout.

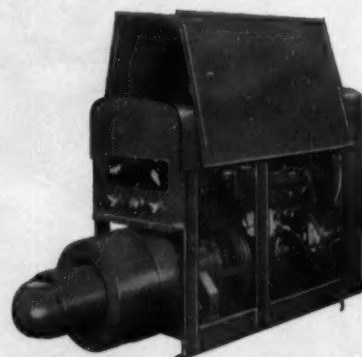


Figure 4. "Shield-Arc" SA-200 welder handles on-the-job repairs and construction in less time... with less cost. Broad current range from 40 to 250 amps.

# THE LINCOLN ELECTRIC COMPANY

Dept. 2704

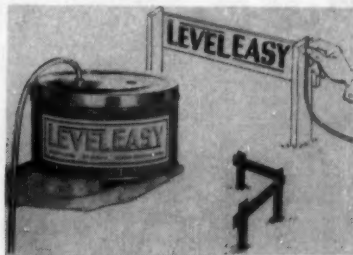
CLEVELAND 17, OHIO

THE WORLD'S LARGEST MANUFACTURER OF ARC WELDING EQUIPMENT

## EQUIPMENT NEWS . . .

Continued from page 170

various widths for use in contraction joints  $\frac{1}{8}$  in. and wider. The melted compound discharged from either side of the kettle is forced through a flexible hose to the nozzle. The rate of flow is controlled by the operator right at the point of application. The pump and agitator are powered by a Model AHH Wisconsin air-cooled engine rated at 9.2 hp. Additional information concerning this product can be obtained by writing—Clipper Mfg. Co., 2800 Warwick Blvd., Kansas City, Mo.

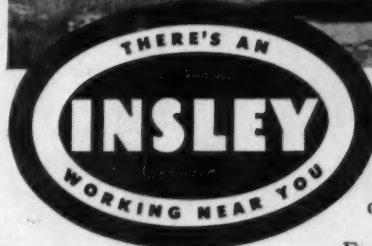
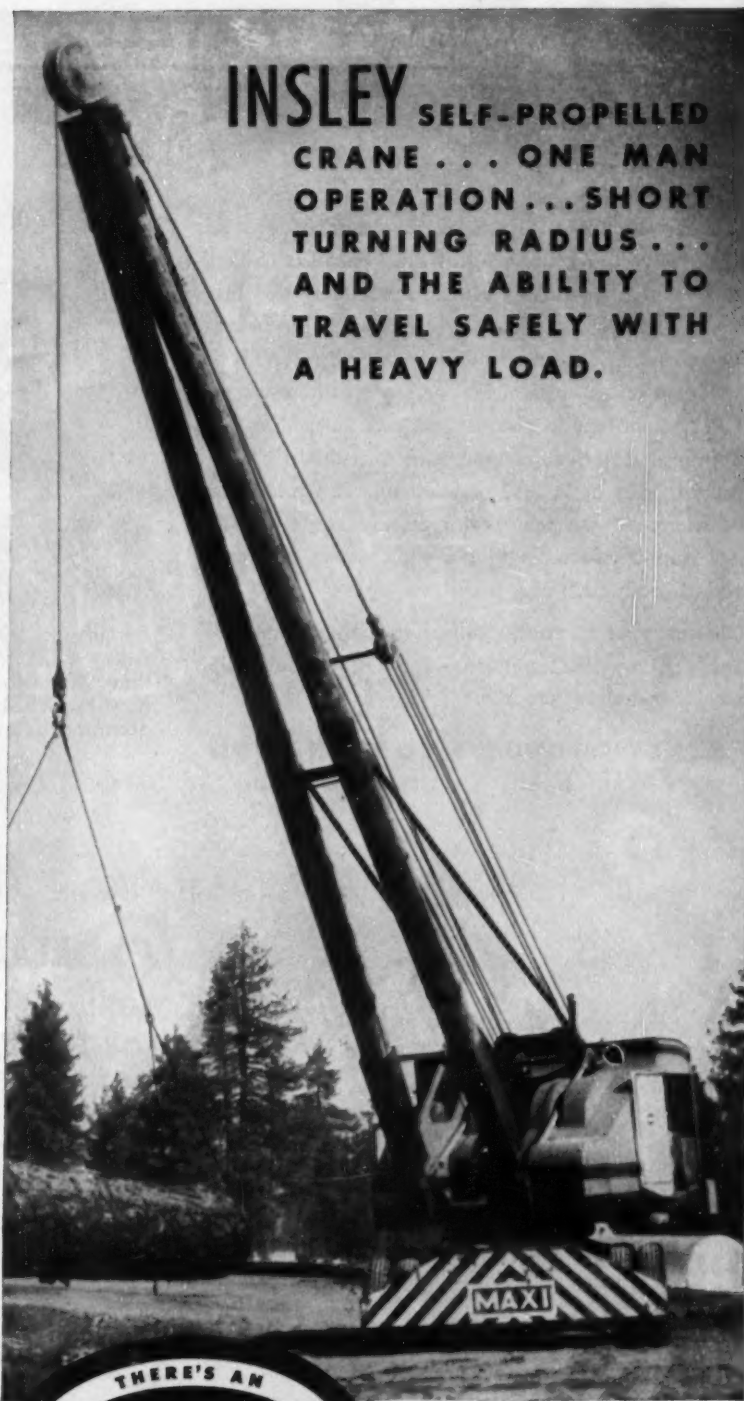


**WATER LEVEL**—The Leveasy is basically a water level combined with a reservoir for easier and more dependable operation. It consists of 50 ft of clear tubing in a special aluminum container  $6\frac{1}{2} \times 3\frac{3}{4}$  in. for tube storage in reservoirs. It comes packed with a vial of color for water and complete instructions on various uses and advantages of reservoir leveling. It is practical as a secondary level on multiple jobs or for the small builder who needs such a hydrostatic level only occasionally. Additional information can be obtained by writing to **Hydrolevel**, 53 DeSoto, Ocean Springs, Miss.



**CARBIDE-TIPPED CORE-TYPE BITS**—A new line of carbide-tipped, hammer core bits, utilizing a patented core slot and having extension shanks for any depth of hole are essentially designed for use in self-rotating electric hammers but can also be used successfully in standard hammers using turning chucks. Speed of drilling is distributed to the multiple carbides set in the perimeter of the hammer body giving rapid penetration of extremely hard materials, doubling the capacity of the hammers and giving lower cost per hole.—Tilden Tool Mfg. Co., San Clemente, Calif.

## INSLEY SELF-PROPELLED CRANE . . . ONE MAN OPERATION . . . SHORT TURNING RADIUS . . . AND THE ABILITY TO TRAVEL SAFELY WITH A HEAVY LOAD.



Insley Type WB CARRIER-CRANE  
with special logging boom.

The Insley Line includes excavators and cranes, 5 to 30 ton capacity, rubber or crawler mounted—gasoline, diesel or electric power. For full information on the Insley Line write the Insley Manufacturing Corporation, Indianapolis 6, Indiana.

wholly owned subsidiary

THE MAXI CORPORATION • LOS ANGELES

# 30 FEET OF TRAVEL... ...SECONDS OF TURNING SAVED...

You can eliminate 30 feet of travel and 30 seconds of maneuvering with an Athey PR21 Rear-Dump Trailer. Rear-dump trucks have approximately 45° turning ability . . . it takes twice as much space and time to swing onto the fill, back and dump! With the PR21 you make turns of 90° under hydraulic-control. The rig can turn in less than its own length, without stopping! It can maneuver, turn and dump its 22.5 cu. yd. load on a 36-foot wide fill. The trailer can be dumped with the tractor at any angle. The 30 feet and 30 seconds that a PR21 saves can mean added production and profit!

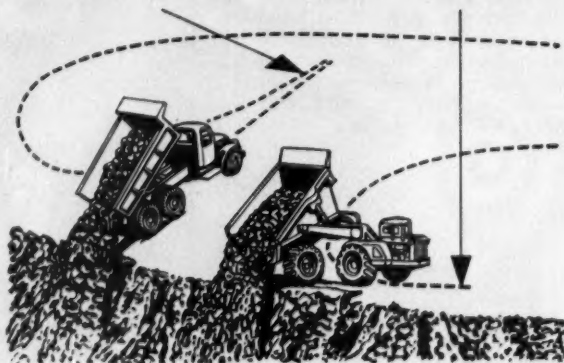
Change your fill traffic pattern to a short, safe, profitable Athey PR21 pattern—your Athey-Caterpillar Dealer can show you how!

## ATHEY PRODUCTS CORPORATION

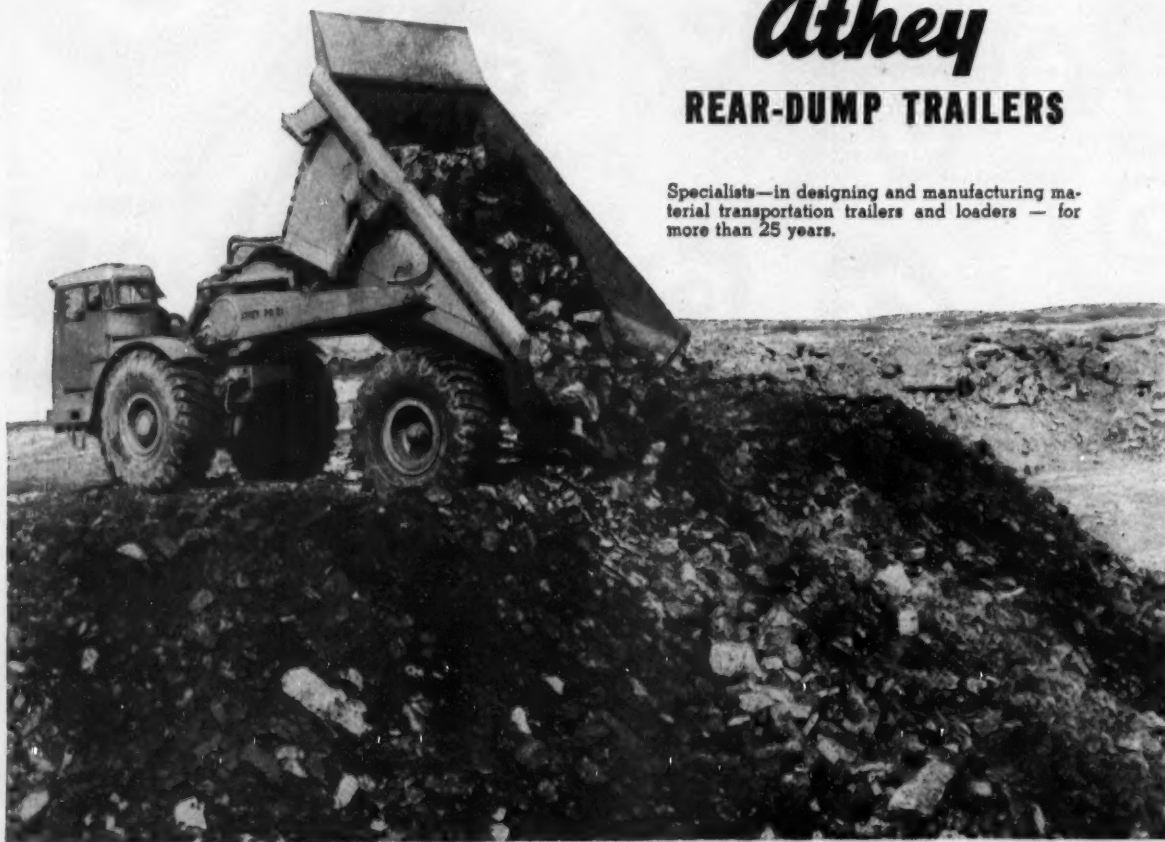
5631 West 65th Street

Chicago 38, Illinois

## NOT THIS . . . BUT THIS



By turning 90° to back to the edge of the fill, the Athey PR21 saves 30 feet of travel, 30 seconds of time. Write to Athey for the new catalog that shows how the PR21 saves you money—loading, hauling, dumping. *It's free!*



# Athey

## REAR-DUMP TRAILERS

Specialists—in designing and manufacturing material transportation trailers and loaders — for more than 25 years.





*Production pattern at*

**TOUSEY**

**R**OW AFTER ROW of yellow topped drums form a honey-comb-like pattern on Tousey's shipping platform. Filled with finest quality paints, lacquers, varnishes, enamels or sealers they are being routed to customers in many fields of operation. For 69 years Tousey has been supplying an ever-growing American industry with top grade finishes—adhering strictly to high standards in production and constantly seeking ways to improve products. A letter or phone call will bring additional information.

**TOUSEY  
PRODUCTS**

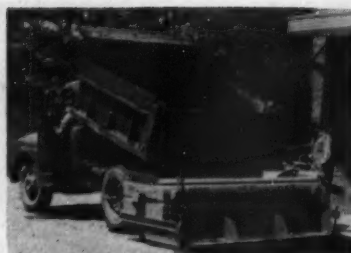
**DURACOTE for DURABILITY**

**TOUSEY VARNISH CO. 520 W. 25th St., Chicago 16, Ill.**



### FOR A MOBILE HOISTING RIG

**O**N MOST HEAVY CONSTRUCTION projects there are innumerable jobs of lifting or hoisting. Often it's imperative to get to the scene quickly. That's where a mobile tractor-mounted Carco winch pays off. For loading and unloading, lifting heavy machinery, pipe and fabricated steel, setting poles, and numerous other work, a Carco winch provides maneuverable lifting power. For a Carco winch, through its rugged, constant mesh gear train, efficiently takes the drawbar pull of the tractor and doubles it for hoisting or pulling. And the Carco winch line gives the added "reach" necessary to handle even an inaccessible load. See your nearest Carco dealer. **PACIFIC CAR AND FOUNDRY COMPANY.** Branches at Portland, Ore., and Franklin Park, Ill.



**SPREADER**—A bituminous concrete and aggregates spreader for either hot- or cold-mix applications, is the New Leader. Of the tow-type variety, this spreader features an exclusive staggered wheel arrangement consisting of 10 pneumatic tires which keep the unit level. The screed is fully adjustable in height by dual controls at each end which permits spreading depths from  $\frac{1}{2}$  to 8 in. It can handle rock up to 4 in. in size for base course. The operator uses a hydraulically operated shut-off gate which controls the start or stop of flow of material. There are no wheels outside the hopper so material can be spread close to curbs or building. It is available in sizes of 8-, 9-, 10- and 12-ft. spreading widths. — **Highway Equipment Co., Inc., Cedar Rapids, Iowa**



**TROWELING MACHINE**—A new low-price small-size finishing machine, the Model M, weighs only 91 lb, is powered with a  $1\frac{1}{2}$ -hp Continental AU 7 engine, carries a 29 7/8-in. trowel diameter which enables it to be carried through ordinary door openings with ease. Plenty of power permits operation at slow speeds for best floating and up to the higher speeds necessary for various types of finishing. Machine utilizes 6x13-in. single trowels for both the floating and finishing which saves time and trouble by eliminating the necessity for changing trowels for these two operations. Because of extreme flexibility, it is claimed that any amateur can operate this machine successfully. — **Whiteman Mfg. Company, 3249 Casitas Ave., Los Angeles 39, Calif.**

### TYING WIRE?

Tying wire with IDEAL REEL on Paducah Dry Goods Bldg., constructed by Edgar Stephens Const. Co., Cairo, Ill.



### STOP WASTE SPEED WORK CUT ACCIDENTS

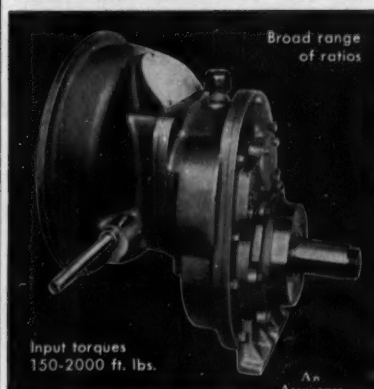
Use the IDEAL REEL. Get 30 to 33-1/3% more usage per pound of wire. Stop up speed 6 to 8 ties a minute. Prevent accidents from flying wire ends, catching, tripping over loose wires. No more wire coils around neck. Usable by either left or right-handed worker. Brass bushings prevent wear of aluminum case. Eagerly accepted everywhere for speed, convenience, safety. Coils of wire (3 1/2 to 4 lbs.) to fit reel now available in principal cities.

**IDEAL REEL COMPANY**  
328 Harahan Blvd. Paducah, Ky.

Patent Number 2,483,000

### IDEAL REEL

GUARANTEED TO LAST  
UP TO 5 TIMES LONGER



Input torques  
150-2000 ft. lbs.

Broad range  
of ratios

An  
Assurance  
Dependable  
Service

### Special heavy-duty

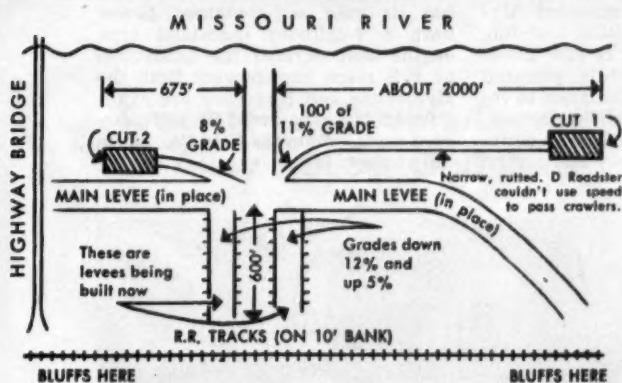
- Transmissions
- Reduction Units
- Mechanical Drives for Torque Converters

Cotta Transmission Co., Rockford, Illinois

**COTTA**  
HEAVY-DUTY  
TRANSMISSIONS

"Engineered-to-order"

# "Ideal for moving river-bottom sand"



Sand borrowed from flood-flats of Missouri River is being used to build a horseshoe levee around a sewer. This tie-back (which runs 600' back from existing main levee to railroad bank) will prevent backwash of sewage in flood times.



Where haul road was wide enough to permit passing of crawlers, Tournapull drove at 15 mph. "Rig has good brakes and a fine motor," said Operator Vern Gallagher.

Miller Excavating Company, Omaha, Nebraska, with 35,000 yds. of wet river-bottom sand to move on construction of a tie-back levee near South Omaha, speeded production on both long and short hauls with their 28 mph, rubber-tired D Tournapull.

Working under tough conditions, the "D" averaged 6 loads (36 pay yds.) per 60-minute hour on 5200' cycles . . . 11 loads (66 pay yds.) per hour on 1750' cycles. Production sometimes was higher, but the Tournapull usually was handicapped by having to stay behind slow-moving crawler-scrapers for 1200' where the haul road was very narrow. Although the "D" could use its much higher speeds on only 2800' of each mile-long cycle, it still made 2 trips to 1 for each crawler. Rubber tires showed practically no wear despite abrasive loading and fast trip over rough, soft, unmaintained haul roads along the river shore. "Tournapull," says Owner Ed Miller, "is ideal for this type of work. It gets the job done fast."

In addition to levees, Miller uses the "D" himself or on rental for such self-loading jobs as laying out streets and sidewalks, land-leveling, finish-grading of roads and highways, and hauling muck from power plant.

"It really gets around to handle these scattered jobs," says Foreman J. H. Jorgensen. "You don't have to fool around putting it on a lowboy." Tournapull travels 28 mph through traffic.

Your LeTourneau-Westinghouse Distributor can show you owner-verified travel and production figures on the type of jobs you're doing. Check with him . . . ask for a demonstration . . . see for yourself how the "D" out-performs larger, more expensive crawler-scrapers.

Tournapull—Trademark Reg. U.S. Pat. Off. DP-468-A-b



## New available — FREE —

a valuable new reference book — "Earthmoving—An Art and a Science". Contains 60 pages of detailed information on how to increase output and lower dirtmoving costs. Unbiased. Written by experienced field engineers . . . checked by veteran dirtmovers. For your postpaid free copy, send coupon today.

Mail to: **LeTourneau-Westinghouse Company, PEORIA, ILL.**

Your Name .....

Title .....

Company .....

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(Street, City, State)

DP-468-A-b



# NEW! Mall POW'R TROW'L

Exclusive  
Features New to  
Power Troweling



36" Ring  
\$375.00  
F.O.B.  
Chicago  
Factory

**MALL**—the first power trowel that delivers 97% of engine power to the trowel blades. New direct "in-line" transmission does it...no belts or pulleys to steal valuable power.

**MALL**—the first power trowel with interchangeable ring sizes...36" or 45" rings, with corresponding floating shoes, finishing blades and a 24" disc for dry tamp floors, can be used with one power unit.

**MALL**—the first power trowel that employs a new, extra sturdy trowel ring and arm design that will not sag. These, plus many other new, exclusive features, make the new **MALL POW'R TROW'L** the finest performing, easiest to handle gasoline driven troweling machine you have ever experienced. **GET DETAILS NOW.**

*MALL Nation-Wide Factory-Owned Service  
Warehouses Assure Fast, Dependable Service.*

**MALL TOOL COMPANY** 7704 S. Chicago Ave.  
Chicago 19, Illinois

Send me full details and prices on the NEW  
**MALL POW'R TROW'L.**

Name \_\_\_\_\_

Firm \_\_\_\_\_

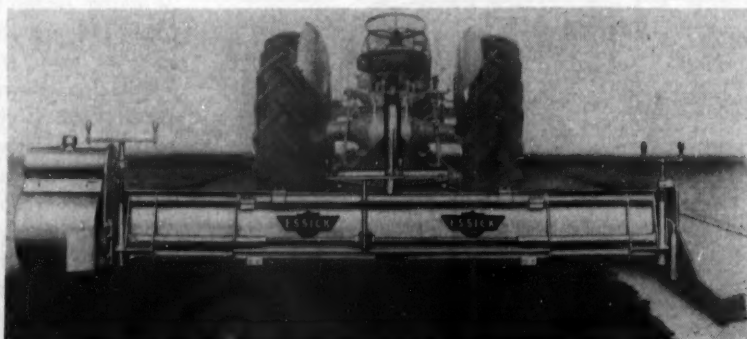
Address \_\_\_\_\_

CU-112



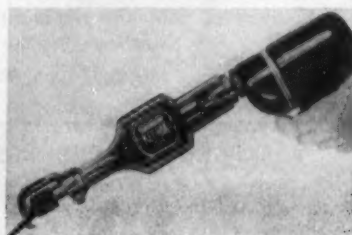
**NOW A SELF-POWERED UNIT**—Bucyrus-Erie's truck-mounted Hydrocrane, an all-hydraulic four-ton, 3/4-yd crane-excavator is now available as an independently powered machine. It has been designed to increase horsepower and line speeds, simplify operation, reduce maintenance, improve efficiency and extend

truck engine life. New Hydrocrane has its own self-contained power unit, a 4-cylinder industrial type engine that permits the utilization of 58% more horsepower. Both the Hydrocrane and Hydrohoe are available as truck-powered or self-powered units.—**Bucyrus-Erie Co., South Milwaukee, Wis.**



**PAVING SPREADER** — Called the Essick Model 710 material spreader, this unit, it is claimed, incorporates design features that tend to reduce cost and time required to do a finished paving job. It is furnished with two steel skids and a roll. The two, 8-ft. long removable steel skids can be quickly attached to each end of the adjustable spreader blade, and serve as a guide for leveling the high and low spots of the base grade. The roll is furnished complete with a large capacity fluid tank and sprink-

ler system that keeps the cold or hot black-top materials from sticking to the surface of the roll. The roll when attached to one end of the spreader and set even with the bottom of the spreader blade operates on the level of the finished paving surface. One of the steel skids attached to the blade-end opposite the roll is adjustable to maintain a level blade clearance as required. It uses an adjustable blade providing widths from 7 to 10 ft.—**Essick Mfg. Co., 1950 Santa Fe Ave., Los Angeles 21, Calif.**



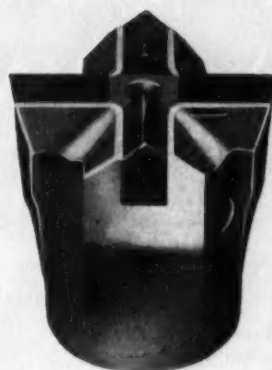
**PORTABLE POWER SAW**—The Key-Hak portable power saw fits any heavy-duty 1/4-in. electric or air drill or motor-driven flexible shaft. It weighs 3 3/4 lb and is well suited for installation and maintenance work. The in-line mechanism and the 360-deg rotability of this tool gives the operator complete control when cutting in any direction. Streamlined

(Continued on page 181)

## TEAMED FOR DRILLING EFFICIENCY....



**Crucible CA Double Diamond  
Alloy Hollow Drill Rods**



**Crucible HY-Tuf for tungsten  
carbide bit bodies**

Here's a combination you just can't beat . . . detachable bits of Crucible HY-Tuf® alloy steel with tungsten carbide inserts and Crucible CA Double Diamond® Alloy Hollow Drill Rods . . . the toughest, longest-lasting drill steel made.

HY-Tuf detachable bit bodies are made to withstand the terrific pounding of heavy rock drills . . . pounding which no ordinary steel can possibly take. And Crucible CA Double Diamond Rods give you superior drilling performance with minimum rod breakage and bit losses . . . a *team* that provides the *lowest cost per foot of hole drilled*.



**CRUCIBLE**

first name in special purpose steels

54 years of *Fine* steelmaking

**HOLLOW DRILL ROD**

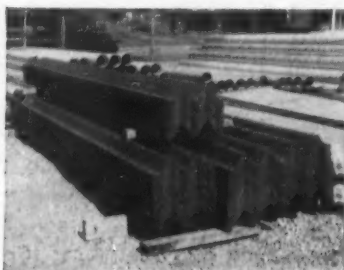
CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.  
REX HIGH SPEED • TOOL • RESISTAL STAINLESS • MAX-EL • ALLOY • SPECIAL PURPOSE STEELS

Canadian Distributor — Railway & Power Engineering Corp., Ltd.

**JUST  
7  
BOLTS**

join 13-foot sections of Armco Guardrail

FLEX-BEAM sections are nestable to save valuable space in hauling and storing. Individual sections of 12-gage metal weigh only 96.5 pounds.



Guardrail installations go fast with Armco FLEX-BEAM. Seven bolts quickly join the easily handled sections—the center bolt holding the rail to the post. A small crew does the job with ordinary hand tools. There are no springs or turnbuckles to attach and no deadmen to install.

Installation is further simplified by the symmetrical cross-section of Armco FLEX-BEAM Guardrail. Individual sections are interchangeable—end for end and top for bottom. So,

other than keeping the traffic face toward the road, your crews need not worry about matching the ends or installing the rail “right side up.”

On your next guardrail job, let Armco FLEX-BEAM Guardrail help make your low bid profitable. Write us for complete data. Armco Drainage & Metal Products, Inc., 4734 Curtis St., Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

## ARMCO FLEX-BEAM GUARDRAIL



Two sections of Armco FLEX-BEAM Guardrail are held to post by the center bolt. Six bolts will be added to complete the splice. FLEX-BEAM can be used with wood, concrete or metal posts.





## EQUIPMENT NEWS . . .

Continued from page 178

for easy handling, cuts can be made quickly and easily in mild steel sheet and steel plate. Also excellent for cutting openings in corrugated metals. Available are special saw blades for cutting stainless steel, monel, chromoloy and chrome vanadium, as well as bronze, copper, aluminum, zinc and lead.—**Producers & Distributors, Inc., 714 S. Sixth St., Allentown, Pa.**



**BOARD FEET MEASURE**—A new pocket-size lumber rule called the Lumtape is a lumber-measuring device that reads directly in board feet. It's small enough to fit easily into the hand and pocket, the blade pulls instantly in and out to accommodate widths up to 10 ft, and a thumblock holds the blade firmly extended as long as necessary. Cost is \$5.50 each.—**The Lumtape Corp., P. O. Box 164, Hillside, N. J.**



**HIGHWAY JOINT SEALING** — Highway joint sealing with Lincoln power-operating pumping system is claimed to be 75% more efficient by test. The Lincoln system dispenses ready-mixed, cold sealing compounds directly from the original 55-gal. drums and eliminates transferring, proportioning or weighing, as in hot mix application methods. Another advantage claimed is that the system permits highway joint sealing in all kinds of weather, even when temperatures are below freezing. The complete pumping system, plus air compressor, can be mounted on a light truck.—**Lincoln Engineering Co., St. Louis 20, Mo.**

# WELLMAN "Williams" MULTIPLE ROPE BUCKETS

*Designed for  
digging bigger  
payloads*



**T**HE double main hinge design of these WELLMAN "Williams" buckets gives you many advantages including: lower head room when boom or crane operations are cramped; stronger, more compact construction; and a really "long reach".

These tough, top-quality buckets are fast operating and give the operator perfect control at all times.

**If it's a WELLMAN—it's built to dig and last while digging.**

## THE WELLMAN ENGINEERING CO.

CLEVELAND 4, OHIO

*Mail  
coupon  
for free  
bulletin*

The Wellman Engineering Company  
7028 Central Avenue, Cleveland 4, Ohio

Please send me bulletin on:

- ☐ Clamshell Buckets  
☐ Dragline Buckets

- ☐ Stone Grabs  
☐ Log Grabs

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Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Position \_\_\_\_\_ Company \_\_\_\_\_

# BROS tip sheet

EQUIPMENT NEWS FROM A FAMOUS NAME IN ROAD MACHINERY

## POWERFUL NEW TRACTOR-MOUNTED ROTARY FOR "SMALL BUDGET" SNOW REMOVAL



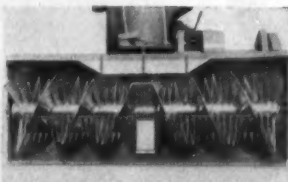
In the fall, detach the bucket from the hydraulic front-end loader. Attach the Series "A" plow and engine unit. In the spring, just remove this unit and re-attach the bucket, leaving your tractor loader free for summer work.

Two special casting chute attachments are available for the Series "A" Sno-Flyer. A segmented "finger-joint" chute capper permits you to adjust height of snow stream, just like crooking your finger. A longer loading chute is also available for truck hauling work. The Series "A" is offered in three plowing widths—4'4", 5'6" and 6'6".



This "A" Rotary features the famous Bros 180° revolving ball-bearing casting chute with cab-mounted hand control.

Imagine a powerful rotary snow plow costing less than one good shoveler's pay for six months! This Bros Series "A" Sno-Flyer does the work of dozens of hand shovelers at a fraction of the cost. And you can reckon your removal time in minutes and hours instead of days! If you want fast snow removal but cannot justify larger truck rotaries, this Series "A" is for you!



Terrific Series "A" performance is due largely to the slit-spiral rotor's unique slots which "knives" through hard-packed snow, handling it easily.

### THIS LOW-COST PLOW NOW AVAILABLE FOR JEEPS

This year Bros is also offering an adaptation of the Series "A" which mounts on 4-wheel drive Jeeps. This model of the Sno-Flyer Rotary is an ideal width (6'6") for most custom-plowing work. Makes a blade-plow Jeep a tool of yesterday.

### "Quickies" for your information

Bros also makes the world-famous line of Series "M" Sno-Flyer Rotaries for large 4-wheel drive trucks, motor graders and crawler tractors.

smaller self-powered Sno-Flyer Rotaries, Series "SA", 21" and 26" plowing widths.

Also new from Bros last year were two new

Early spring of 1954 Bros delivered the largest railroad rotary ever built. Moral: if you want to plow snow, call Bros!

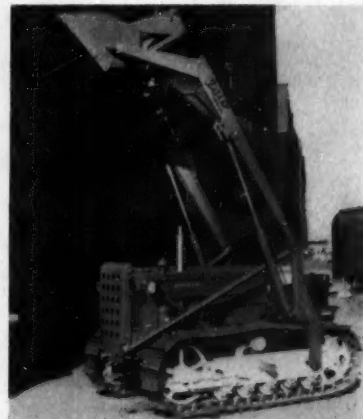
Road Machinery Division... **WM. BROS BOILER AND MFG. CO.**  
1191 10th Ave. S.E., Minneapolis 14, Minnesota

To get specifications and data on any of the Bros snow removal products listed below, just check the items which interest you and send us this slip, along with your name, company or organization and postal address.

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Series "A" Sno-Flyer Rotaries for tractor loaders        | <input type="checkbox"/> Series "A" Sno-Flyer Rotaries for Jeeps                | <input type="checkbox"/> Series "M" Sno-Flyer Rotaries for motor graders    |
| <input type="checkbox"/> Series "SA" self-powered Sno-Flyer Rotaries, 21" and 26" | <input type="checkbox"/> Series "M" Sno-Flyer Rotaries for 4-wheel drive trucks | <input type="checkbox"/> Series "M" Sno-Flyer Rotaries for crawler tractors |
| <input type="checkbox"/> Bros blade-type push plows                               |   |   |



**TRUCK CRANE**—Said to convert any standard truck into a dual-purpose hauling and handling unit, the new self-contained materials handling crane, called the Truck Crane, will lift up to 5,000 lb, swing it on to the truck, lift it off, and spot it anywhere desired within a 16-ft, 280-deg radius of the truck. The complete unit takes up only 18 in. of space behind the truck cab. When unloading, hydraulically controlled outriggers stabilize the truck. The complete mechanism is hydraulic, with controls for boom, winch, carriage and outriggers operated from control panels on both sides of the truck. Two models are available, the HB-50 horizontal boom with optional boom lengths up to 16 ft and the EB-50 equipped with a telescoping elevating boom with extensions up to 22 ft.—**Truck-Crane, Inc., 130th and Halsted Sts., Chicago 27, Ill.**



**INDUSTRIAL LOADER** — This industrial hydraulic loader for John Deere Tractors has a lift capacity of 2,400 lb using the standard built-in John Deere pump. It is designed with double-acting hydraulic cylinders to give the operator power either when raising or lowering. The lifting arms are of heavy-gage plate steel in a stress-resistant box shape to give more strength. The loader comes with a 10.8 cu ft utility bucket for sand, rock, coal, gravel, etc. Attachments include a straight or angle dozer blade, a scoop designed to handle light materials, a boom and hydraulic tongs for logging operations.—**Valley Mfg. Co., Valley, Neb.**

GM DIESEL  
CASE HISTORY NO. 541-61



**USER:** Bert C. Altfillisch, Contractor,  
Los Angeles, California.

**INSTALLATION:** 12 General Motors Diesel  
engines powering 6 HD-19 and 2 HD-20  
Allis-Chalmers tractors and two  
Twin-Engine Euclid scrapers on flood

control project in Los Angeles County,  
California.

**PERFORMANCE:** Twin-engine "Eucs," with  
4 wheels driving, scrape 23-yard  
loads. Two units do work of three  
single-engine rigs, and required no  
pusher on this job.

It Pays to STANDARDIZE on

available in more than 750 models of equipment built by over 100 manufacturers.



## 2 units do the work of 3

With two General Motors Diesel engines—one pulling and the other pushing—two 24-yard (heaped rating) twin-engine Euclid scrapers hauled as much yardage as three single-engine units did on this 1½-million-yard flood control project. What's more, the GM Diesel-powered "Eucs" scraped 40 tons in a single pass *without a pusher*.

Delivering power at every piston downstroke, quick-acting GM 2-cycle Diesels respond faster when the blade hits the dirt—accelerate quicker for faster runs to the spreading site. They start at the push of a

button even in coldest weather—deliver thousands of hours of trouble-free operation. Clean, simple design makes maintenance easy and many moving parts can be interchanged between all Series 71 Models. When parts *are* needed, they're quickly available at low cost from your GM Diesel Distributor. For full details on GM Diesel power for your job, call him in today.

★ ★ ★

DETROIT DIESEL ENGINE DIVISION

GENERAL MOTORS • DETROIT 28, MICHIGAN

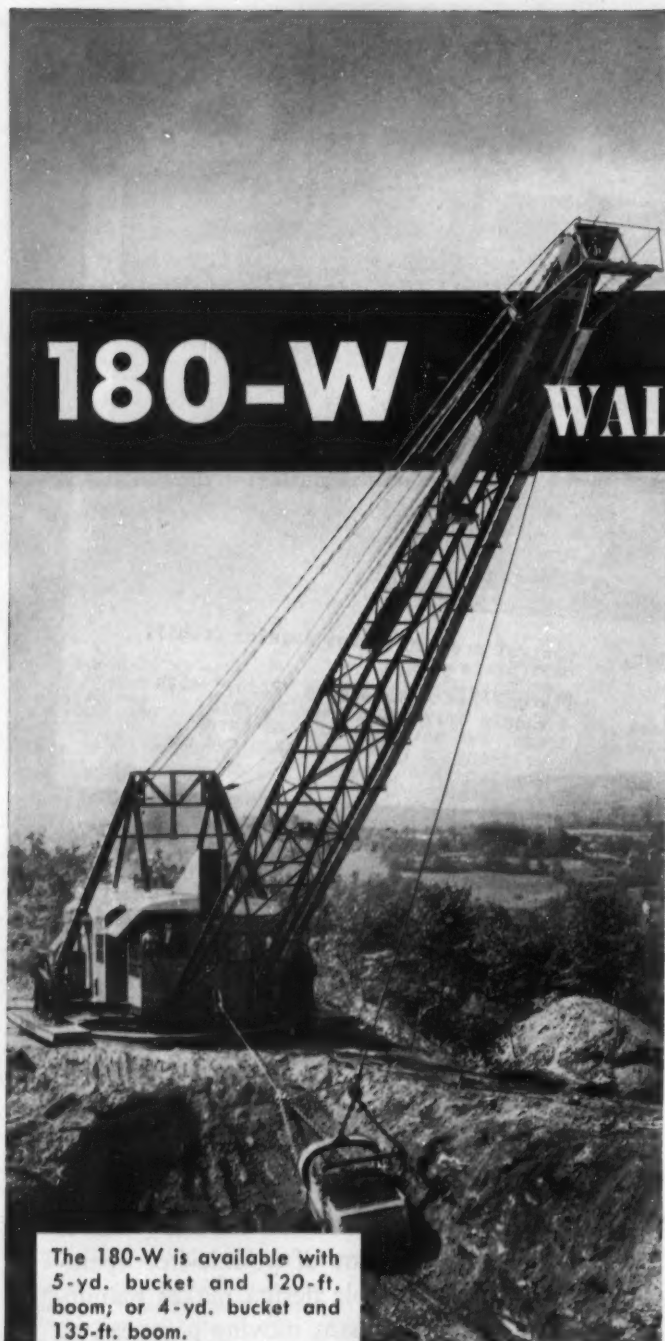
Single Engines . . . 80 to 800 H.P. Multiple Units . . . Up to 898 H.P.



**Readily Dismantled**  
**Readily Assembled**

**180-W**

**5-cu. yd.**  
**WALKING DRAGLINE**



The 180-W is available with 5-yd. bucket and 120-ft. boom; or 4-yd. bucket and 135-ft. boom.

Now you can put real high-capacity digging ability to work wherever your job takes you. The Bucyrus-Erie 180-W walking dragline offers unmatched ease of erecting and shipping for a machine of this type.

Only partial disassembly is necessary for moving from one job to another — the entire machine is easily loaded on five U. S. railroad cars. This not only saves time and expense in moving, but increases the machine's value throughout its entire life.

In addition to its exceptional portability, the 180-W offers dependability, big output, long working reach, maneuverability and low maintenance for which Bucyrus-Erie draglines have earned an outstanding reputation. Send for complete information.

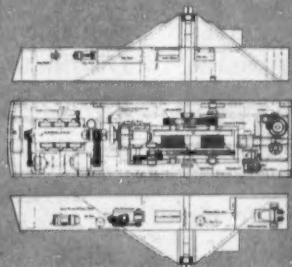
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**BUCYRUS  
ERIE**

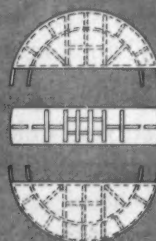
**South Milwaukee,  
Wisconsin, U. S. A.**

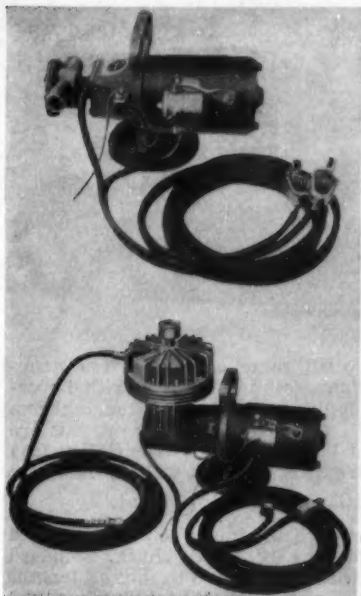
Entire Dragline  
Easily Loaded  
On Five U. S.  
Railroad Cars

Side wings unbolt from center section of revolving frame. Main machinery remains fully assembled and in proper alignment.

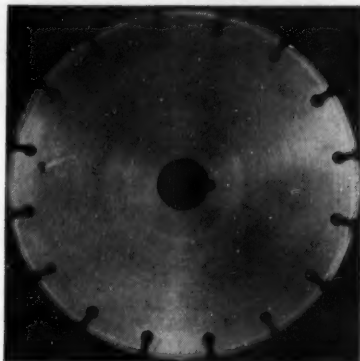


Base is in three separate welded-steel sections, joined by bolting flanges — easily disassembled and shipped.





**PUMP AND INFLATOR**—Two new G&T products, the G&T Versi-Pump and the G&T Versi-Pressor are now available. The pump has a minimum capacity of 750 gal per hr and is suited for emergency drainage, small irrigation jobs, hydra-inflation or heavy tires, fueling trucks, tractors and other equipment in the field. The pump weighs approximately 30 lb. The G&T Versi-Pressor will inflate a 6.00x16 tire to 30-lb air pressure in 30 sec or 7.50x20 tire to 55 lb in 3½ min. It will develop a vacuum of 24 in. of mercury. It also can be used to provide pressure for painting, greasing and other work. —G&T Industries, Inc., 1420 Barwise, Wichita 2, Kan.



**CONCRETE SAW BLADES**—In the Clyde Duo-Bond saw blade, the diamond bond is fortified by a new process that provides extremely hard cutting edges which resist abrasion and wear. The manufacturer of this blade guarantees it to out-perform other blades on a comparative cost per ft basis. They are available in 12-in. diameters to fit any make of concrete sawing machine. —The Clyde Co., P. O. Box 72, Racine, Wis.



## HERE'S THE ASPHALT MIXING PLANT

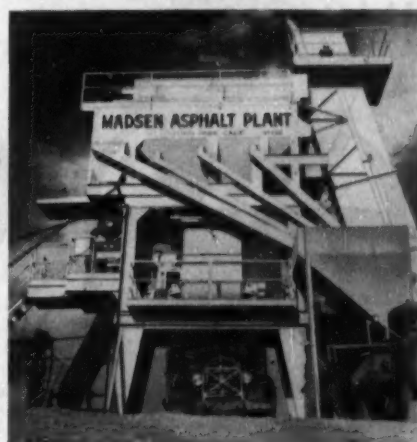
that takes the  
high-cost out of  
MAINTENANCE

In the MADSEN Model 481 Batch Capacity Asphalt Plant, MADSEN engineers have incorporated many features to reduce maintenance time and cost. All components of the Model 481 are designed and arranged for maximum accessibility in the field. The oversize capacity weigh-box, with air operated gate and 4-point lever suspension, is roller-mounted so that it may be quickly rolled out of the way for shaft replacement. The pug mill mixer has externally removable liner segments, each of which may be replaced in the field by one man in approximately 20 minutes...no need to remove shanks or tips to replace worn liners in a MADSEN Mixer. Another feature which makes maintenance easier is the use of adequate, safe platforms provided wherever servicing may be needed. You will want these MADSEN advantages in your next asphalt plant...they pay off in overall job profits. Why not get the complete story on the MADSEN Model 481 Asphalt Plant today.



WRITE FOR  
BULLETIN NO. 800

*Equipment that Serves*



## MADSEN MODEL 481 ASPHALT PLANT

MADSEN IRON WORKS, INC.  
14100 E. ROSECRANS AVE., P. O. BOX 38  
LA MIRADA, CALIFORNIA

## First Choice for Variable Load Service...WISCONSIN

HEAVY-DUTY *Air-Cooled* ENGINES

Whether handling variable heavy-duty loads such as this half-ton, Wisconsin-powered prime mover, made by Prime Mover Co., Muscatine, Ia., or continuous, constant-load assignments... Wisconsin Air-Cooled Engines have the inherent "Lugging Power" that follows through when the going gets heavy.

This is the result of basic heavy-duty engineering design and construction and such features as tapered roller bearings at BOTH ends of the crankshaft; high tension rotary type OUTSIDE Magneto with Impulse Coupling; dependable, all-weather AIR-COOLING and positive lubrication.

You can't do better than specify "Wisconsin Power" for your equipment... available in a complete power range from 3 to 36 hp., in 4-cycle single cylinder, 2- and 4-cylinder models.



**Power**  
TO FIT THE  
JOB

**Power**  
TO FIT THE  
MACHINE

MOST  
HOURS

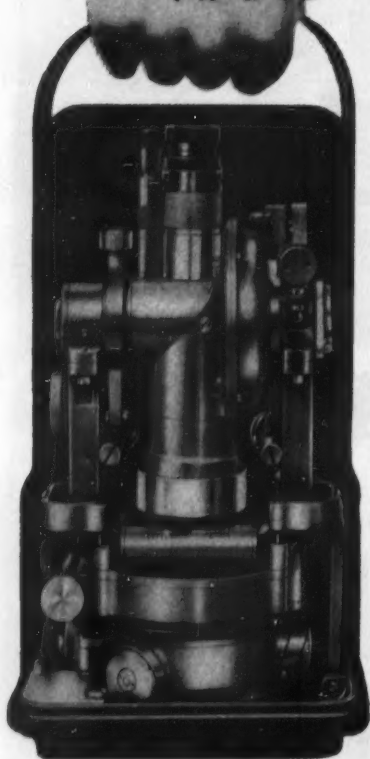


**WISCONSIN MOTOR CORPORATION**

World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 46, WISCONSIN

ACCURACY  
IN YOUR  
HAND



Carry a Kern Instrument to assure a better, faster job. Kern's consistent research and experimentation result in functional, supremely accurate instruments for you; instruments for today and tomorrow.

**KERN'S DKM 2**

one second Theodolite for Triangulation, big construction and Engineering Operation.

**FAST DIRECT READING**

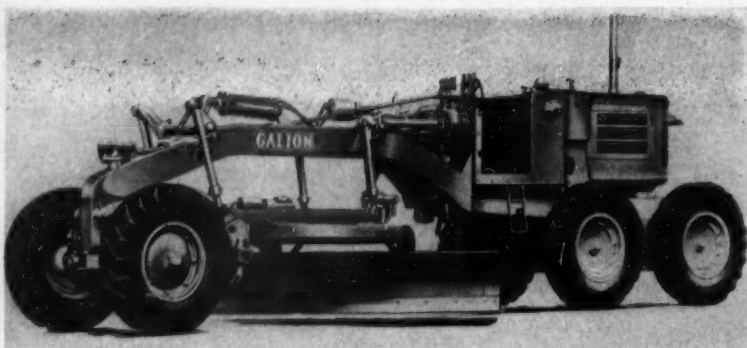
To 1", Estimation to  $\frac{1}{10}$ ".

All reading from 1 position.

**COMPACT INSTRUMENT**

is highly portable. Weight 6 lbs. Height 7" including Metal Case.

Ask for detailed Brochure DK518-3  
SERVICE DEPARTMENT  
FACTORY TRAINED PERSONNEL



**NEW MOTOR GRADER**—New in the medium heavy-duty class is the Galion Model 450 all-gear tandem drive motor grader. Without scarifier it weighs 20,630 lb. and up, depending on equipment. It uses a 75

hp IHC diesel engine and a new constant mesh transmission with 6 overlapping forward speeds ranging from 1.1 to 20.1 mph. Reverse speeds are at 1.3 to 8.4 mph. —The Galion Iron Works & Mfg. Co., Galion, Ohio

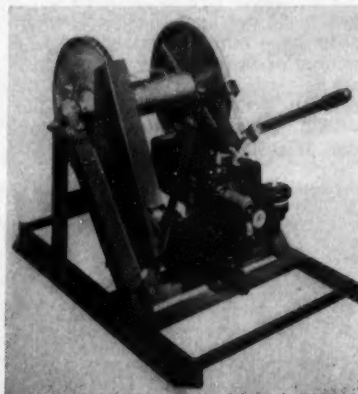


**WATER SWIVEL**—High-speed diamond drilling through brick, granite, limestone, concrete, marble, ceramic tile, plate glass, etc., is now made easier by the use of the improved Water Swivel. This unit fits into a standard drill chuck and supplies running water to cool the diamond drill bit which is attached to its lower end and to wash away the cuttings. A hose connects the water swivel to any convenient water supply. It is available in three sizes which takes diamond drills from  $\frac{1}{2}$  to 1 in. OD and which fits in a 1 in. drill chuck. The medium size takes diamond drills from 1 to 4 in. OD and fits  $\frac{3}{4}$ -in. drill chucks. The heavy-duty Water Swivel takes dia-

mond drills from 3 to 6 $\frac{1}{2}$  in. OD and fits any 1-in. drill chuck. Standard drill lengths are 3 in., but all lengths are available. —Wheel Trueing Tool Company, 3269 W. Davison Ave., Detroit 38, Mich.

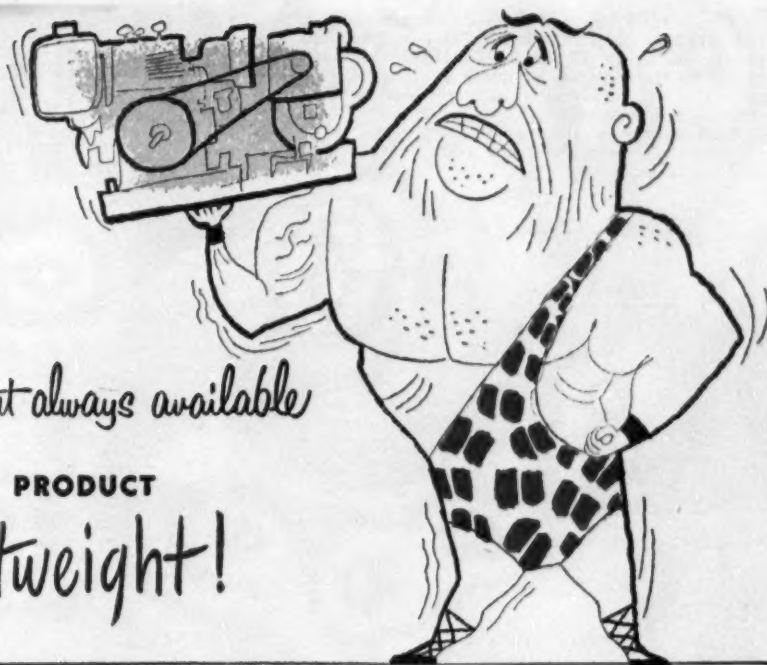
**500-LB. CAPACITY POWER HOIST**

—Designed to sell for \$219 this 500-lb. capacity power hoist will hoist loaded wheelbarrows, pallets of roofing material, brick, cement blocks and other equipment. The hoist does



not use a conventional clutch or brake. The drive and clutch consist of a heavy-duty V-belt directly connecting the geared gasoline engine with the drum. An idler pulley which tightens the V-belt to raise the load acts as a clutch. The only wearing part is the V-belt which is of standard size. The breaking mechanism uses pure nylon rope around the brake drum. Frame construction is welded steel, and provision is made for sliding a plank through the frame for weighting it down. It has a lifting speed of approximately 100 ft. per min. and weighs 155 lb. —Reimann & Georger, 252 R&G Bldg., North Division at Ellicott, Buffalo 3, N. Y.





*weight lifters aren't always available*

**KEEP YOUR PRODUCT**

**Lightweight!**

**Power Products new industrial engine offers**

**60% less engine weight**  
**42% less engine size**

**N**OW you can give your power equipment the Lightweight being demanded by all of industry. Power Products engines are not just a little lighter—they're 60% lighter than any currently available industrial engine of comparable horsepower . . . and that means greater portability for equipment. Wheels, carriages, etc., formerly necessary for portability, can be eliminated in many cases, allowing further streamlining and extra weight and cost savings.

Power Products engines are more compact in design — easy starting — offer sustained performance at high speeds and are easier to service than any other industrial engines. Yet they actually cost less!

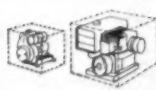
If you want better acceptance — better performance for any industrial product that requires from 2 to 4 horsepower . . . switch to Power Products Lightweight!



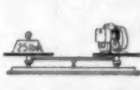
**LOOK AT THESE FEATURES**



**Lightweight** — A standard 3½ H. P. industrial engine weighs as much as two and one half Power Products industrial engines of 3½ H. P.



**Compact** — A unique design makes this engine amazingly compact. A comparison of overall dimensions shows a saving of 72% in size over the standard engine.



**LOOK AT THE RESULTS** — "Pump and motor weigh only 25 lbs.," reports a leading pump manufacturer. This is typical of the kind of amazing lightweight products these engines make possible. "Only 41 lbs., and usable anywhere, at any angle." Grain auger manufacturers are among the many who have found it possible to revolutionize their products with these engines.

**POWER PRODUCTS CORPORATION**  
Grafton, Wisconsin

Gentlemen:  
I knew what important advantages weight saving can give my products. Please send me full information on these new engines.

Name.....

Company.....

Address..... State.....

Doetsch Brothers, Evanston, Illinois contractors, keep their two HD-9G's busy on a variety of jobs, like their extra-production ability: "The 2-yd HD-9G sometimes will do up to three times as much work as a 1-yd machine. Let's say the smaller unit will load a 10-yd truck in five minutes, roughly — then a 9G will load it in two minutes. Where a 1-yd machine will keep one truck going, a '9' will keep three going."



## you can handle **BIGGER** jobs, **TOUGHER** jobs with this **2-YD** Tractor Shovel



Two Tractor Shovels have cut production costs by bringing greater efficiency to a Midwest rock quarry. These two machines, equipped with standard 2-yd buckets, load rock directly from quarry face to rock crusher, eliminating the need of continually moving the crusher. The speed of the two Tractor Shovels enables the crusher to load out 135 eight-ton trucks a day.

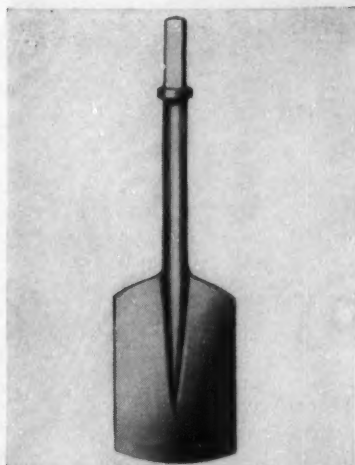
Here's a Tractor Shovel with the handiness of the popular Allis-Chalmers 1-yd unit— but with the power, strength and ability to give more than *double* the working capacity.

The Allis-Chalmers 2-yd HD-9G is just right for the jobs that overload lighter machines. Its husky 72-drawbar-hp engine packs big-job stamina. The heavy-duty, 2-yd bucket is shaped to roll-in material — get a full load with less tractor effort. It lifts loads to a dumping height of 11 ft, 4 in. There's plenty of stability, too, with 29,900 lb of weight and extra long tracks. You'll also find many other proved production-boosting features like: all-steel, box A-frame; 1,000-hour lubrication intervals for truck wheels, idlers and support rollers; simple shift pattern; quick-response hydraulic system; unit construction.

Your Allis-Chalmers dealer has all the facts. Ask him to show you how the big-production HD-9G can improve your operations.

# ALLIS-CHALMERS

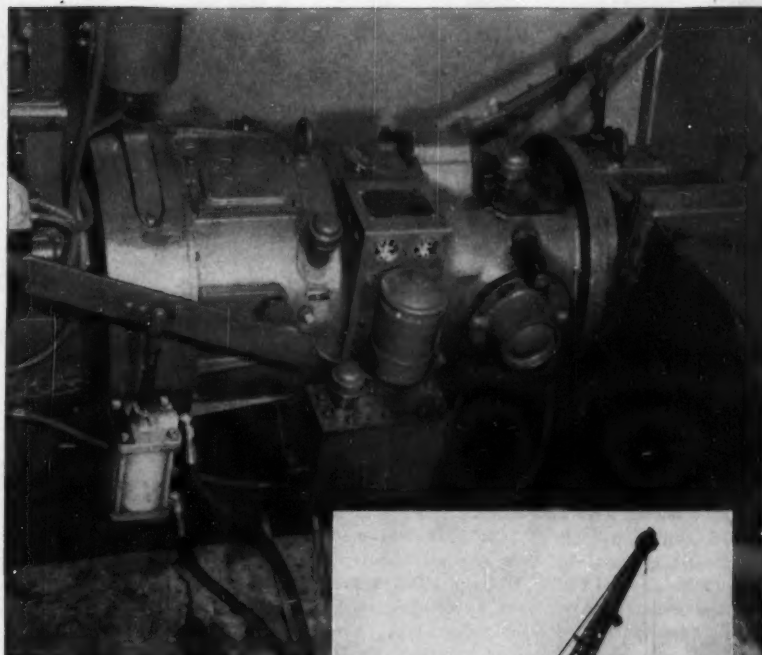
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.



**CLAY SPADE**—Fine-grain forged tool steel is used in this new clay spade being produced especially for clay digging. This tough steel makes possible a remarkable lightweight spade which helps to reduce operator fatigue. Blade sizes are 4½-, 5½-, and 8-in. widths. Length is 16 in. Complete details can be obtained from—**Brunner & Lay, Inc., 9300 King St, Franklin Park, Ill.**



**NAIL DRIVER**—A Morgan portable nail driver with an automatic hopper feed that sinks each nail with a single stroke of its pneumatic driver is claimed to give production up to 50 nails per min. The driver operates by compressed air, requiring 14.7 cfm at 80 to 90 psi. It consists of a feeding unit weighing 65 lb, a driving unit weighing 8½ lb, and a length of plastic hose connecting them. The nails that can be used range from 4d to 8d in size. They are aligned and fed by an air-driven oscillating hopper with a capacity of 8 lb of nails. Driver is operated in any position and without recoil by depressing the barrel against the work and pulling trigger.—**The Morgan Machine Co., Inc., 1212 University Ave., Rochester 10, N. Y.**



Twin Disc Model CF Three-Stage Torque Converter, Industrial-Type (up-to-6:1 torque multiplication) and Twin Disc Reverse Gear are used in this diesel power conversion unit. Twin Disc Torque Converters are available in three sizes, with seven capacities each and 20 input, output combinations, to handle any type gas or diesel power requirement from 40 to 650 hp.



## Conversion unit with Twin Disc Torque Converter saves \$3,344.64 in one year

To get modern, flexible horsepower on a 32-year-old steam locomotive-crane, Edgewater Steel Company converted to a new diesel power unit.

And to get *more work* from the 165 hp of the Cummins HRIP-600 Diesel—with silken-smooth transmission of torque in exact proportion to the load demand—a *complete power unit* was recommended... *equipped with a Twin Disc Three-Stage Torque Converter.*

Here are the results: steady, dependable *reserve power* that crowds the load every second, without engine-lugging. Slacking and jerking are *eliminated*. Work cycles are *up*... and it has been reported that operating costs are *down*, from \$11,232.00 to \$7,887.36 per year.

If you're repowering, buy a *complete power unit*... equipped with a Twin Disc Torque Converter. They're available from your industrial engine dealer. For specific information, write Twin Disc, Hydraulic Division, Rockford, Illinois.



TWIN DISC CLUTCH COMPANY, Racine, Wisconsin  
Hydraulic Division, Rockford, Illinois





## Here, PRIME-MOVERS handled everything!

Three Prime-Movers handled ALL concrete and masonry materials for this seven-story building. These Prime-Movers hauled, spotted, and placed CONCRETE onto pan-forms for upper-floor pours! And then, with quickly interchangeable flatbeds hauled BRICK, TILE and LUMBER direct to the men who used them. Write for complete on-the-job studies covering this and other projects.

THE PRIME-MOVER COMPANY, MUSCATINE, IOWA

**CONCRETE  
BRICK  
TILE  
MORTAR  
LUMBER**



### NEW EARTHMOVER-TYPE TIRE—

A low-pressure, earthmover-type tire of new design has been developed by Goodyear to permit improved performance on large earthmoving projects. The new unit, known as the wide-base earthmover, is constructed for a wider rim than present earthmover tires. The wider base gives better flotation and permits faster and steadier operation of the vehicle. At present it is made in only two sizes 29.5x25 and 29.5x29. It is mounted on a rim 25 in. wide. It is available in both the sure-grip and hard-rock, lug-tread designs.—Goodyear Tire & Rubber Co., Akron 16, Ohio.

# DELRAC

## CEMENT ACCELERATOR

Integral Accelerator  
Densifier and Hardener  
for Concrete and Mortar

Add Delrac Cement Accelerator at the time of mixing and your concrete cures faster—becomes exceptionally dense and hard.

Add it to a Portland-cement mortar mix and the mortar becomes fat and strappy—extremely easy to use.

Write for Bulletin 600

**DELRAC CORP.**  
24 Newell St.  
Watertown, New York

*Cut Both  
Timber  
and Brush!*

16" SIZE  
**\$22850**  
NATION'S NUMBER ONE  
CHAIN SAW

WITH  
EXCLUSIVE  
ATTACHMENT  
**\$12950**  
**BRUSH-CUT  
ATTACHMENT**  
Write for details on  
This NEW  
"Double-header"

PRICES  
F.O.B. Ashland

**LOMBARD**  
66 MAIN STREET  
ASHLAND, MASS.



**PISTOL-TYPE TORCH**—The Torch-O-Matic designed for use with propane gas is handy for soldering, burning, sweating and other jobs. A squeeze of the trigger produces a controlled flame, a fine, pin-point or a full 6 in., as desired for the job. The new propane Torch-O-Matic connects directly to the propane tank without need of intermediate valve apparatus.—Velocity-Power Tool Co., 201 N. Braddock Ave., Pittsburgh 8, Pa.



Fuller 10-B-1120 Transmissions give Allegheny Construction Equipment Company of Pittsburgh, Pennsylvania, the faster, easier shifts they need in their fleet of Autocar dump trucks, which haul 30-ton payloads on grades up to 15%.

## Leading Truck Manufacturers Standardize on Fuller Transmissions

... for Fuller Transmissions have *proven* themselves in all types of on-and-off highway service, where load-and-road conditions are the toughest. Outstanding performance and *customer satisfaction* has created such a demand that leading truck manufacturers have *standardized* on Fuller Transmissions.

Famous "extras" that mean longer

wear life, quiet operation, easy shifting are: ... crowned gear teeth that reduce load concentration ... offset mating gears to limit load concentration.

More than 110 different models are available, for trucks from 100 to 400 hp, engines from 330 to 1440 cubic inches ... there is a Fuller Transmission *designed* with your job in mind

... ready to help you move more, *for less*. Check with your local truck dealer for the *right Fuller Transmission* for your job.

*really*  
where horsepower goes to work



FULLER MANUFACTURING COMPANY (Transmission Division), KALAMAZOO, MICHIGAN

Unit Drop Forge Division, Milwaukee 1, Wisc. • Shuler Axle Co., Louisville, Ky. (Subsidiary) • Western Dist. Branch (Sales & Service, All Products), 641 E. 10th St., Oakland 6, Cal.

# UPSON-WALTON

## drop-forged clips

**ENGINEERED  
FOR SAFETY**



Heavy, Steel U-bolt; hot galvanized after threading to prevent weakening from rust or corrosion.

Clip bases drop-forged under close supervision in accurately made dies. Bases made of high grade forging steel and hot galvanized.

American Standard heavy hex nut . . . hot galvanized for long life.

**U**PSON-WALTON drop-forged steel clips are made to the highest standards of quality for tough, heavy-duty service and engineered for safety. See your nearby distributor for quick and efficient service from stock. Write for free catalog on wire rope fittings.



## THE UPSON-WALTON COMPANY

12500 ELMWOOD AVENUE • CLEVELAND 11, OHIO  
New York • Chicago • Pittsburgh

YOU CAN DEPEND ON UPSON-WALTON'S LONG EXPERIENCE—ESTABLISHED 1871

## New PUBLICATIONS

### From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use.

**NELSON HEAVY-DUTY BUCKET LOADER**—A 4-p folder which describes the new Nelson heavy-duty bucket loader with hydraulic operated swivel discharge conveyor includes both still and action photos of the machine, one model on rubber tires and the other on crawlers. Complete specifications also are given. Ask for Bulletin 541 when making your request.—N. P. Nelson Iron Works, Inc., 852 Bloomfield Ave., Clifton, N. J.

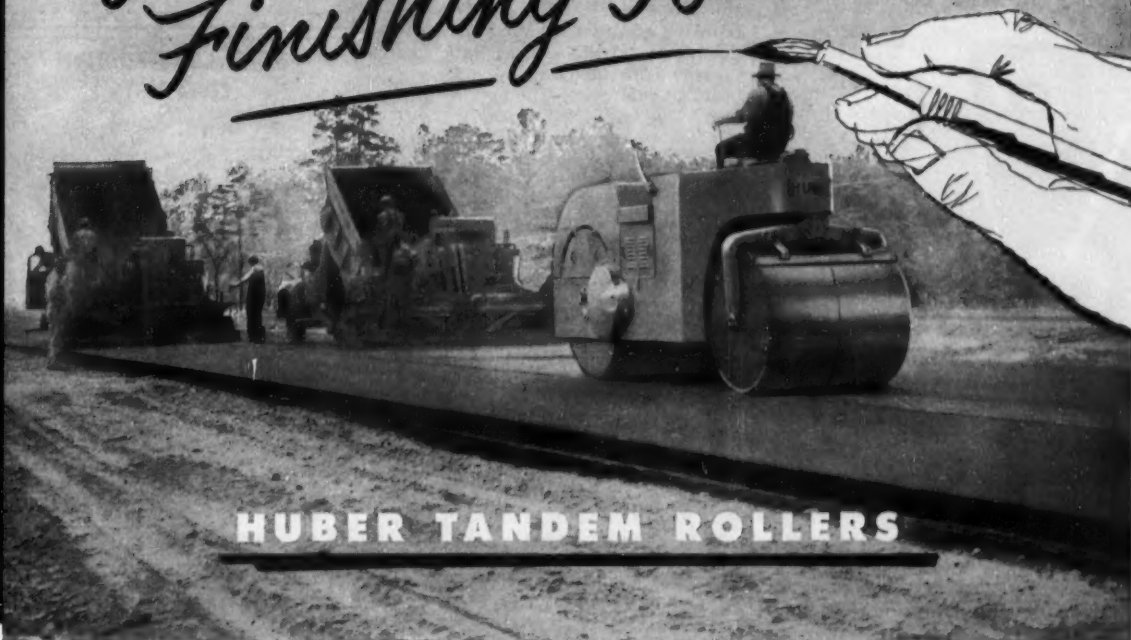
**LOW-HEAT POZZOLITH DATA**—Low heat pozzolith in mass concrete for reducing total heat evolution is well described in a new 4-p folder which outlines the advantages of pozzolith in plastic and hardened state, the various types and adaptations of pozzolith, design of this type of concrete, use in mass concrete and use for structures and flat slabs in hot weather and in tropical and semi-tropical areas. It also illustrates structures where this type of low-heat pozzolith was used. You can obtain a copy of this interesting booklet from The Master Builders Co., Cleveland 3, Ohio.

**TRUCK-CRANE INFORMATION**—A complete booklet describing the P&H truck cranes Models 255-A, 355-A and 555-A is just off the press. An interesting feature of this book is the motion picture type story on the takedown of P&H's boom for road travel. Sequence photographs show how this can be made and how quickly the truck crane is made ready for street travel and the next job. You can get a copy by writing to Harnischfeger Corp., Small Excavator Div., 4602 W. National Ave., Milwaukee 46, Wis.

**FIREPROOF ROOF DECKS**—Fireproof insulated roof decks are covered in three technical folders just released by the Vermiculite Institute of Chicago. "Poured-in-Place Vermiculite Concrete Over Vented Steel Roof Decks" describes a very recent development that permits considerable flexibility in joist spacing and slab thickness. "Vermiculite Concrete Roof Decks Over Paper-Backed Wire Lath" is the title of two folders covering steel or concrete joist construction where the joist spacing does not exceed 32 in. on centers. They are available from the Vermiculite Institute, 208 South La Salle St., Chicago 4, Ill.



*for the Important  
Finishing Touch*



**HUBER TANDEM ROLLERS**

## **Why do without these Advantages?**

Here's capacity to keep two finishing machines busy . . . Here's size to handle mile after mile of pavements on schedule . . . Here's freedom from scuffing, for Huber's guide roll assembly can be kept "factory new" for the life of the machine . . . Here's the fast, smooth, cushioned reversing of fluid coupling . . . Here are adjustable tapered roller bearings that add years of snug operation through adjustments that compensate for wear . . . Here is swivel pin and king pin design and construction that ends guide roll problems forever . . . Here is a heavy, rigid, wrap-around frame permitting close side clearance . . . HERE, in short, is EVERYTHING you've ever wanted in a tandem roller. Your nearest Huber Distributor will be happy to show you Bulletin T-152 and give you the rest of the story.

### **ABOVE**

*This big HUBER keeps two finishing machines hustling on an expressway in the South. Other HUBER Tandems are busy on blacktop jobs throughout the world.*

**HUBER MANUFACTURING CO. • Marion, Ohio, U. S. A.**  
Manufacturers of Huber Maintainers, Graders and Complete Line of Rollers



**SAVE HOURS,**

**CUT COSTS ON YOUR**

**PIPING JOBS**



**PUSH PIPE UNDER STREETS, TRACKS, walks, floors and other obstacles with a GREENLEE Hydraulic Pipe Pusher. One-man-operated, portable, simple to operate. No tearing up of pavement . . . eliminates extensive ditching, tunneling, back-filling, tamping, repaving. Cuts job time to a fraction. GREENLEE Hydraulic Pipe Pusher often pays for itself on first job. Two sizes—model shown above for pushing 3/4 to 4" pipe. Larger unit, below, for pipe over 4", concrete sewer pipe and large drainage ducts. Power pump also available for extra ease and speed of operation.**



Write today for descriptive literature. Greenlee Tool Co., 2189 Columbia Avenue, Rockford, Illinois, U.S.A.

#### PARTS FOR DRAGLINE BUCKETS

—Placement parts for any make or model of dragline bucket are described in an entirely new 28-p catalog indexed and tabbed for speedy reference to parts and parts specifications, etc. Copies of this catalog are available from your nearest ESCO dealer or from **Electric Steel Foundry Co., 2141 N.W. 25th St., Portland 10, Ore.**

#### BINKS PAINTING EQUIPMENT—

A well-organized 74-p booklet covers the complete line of Binks spray-painting equipment. More than 1,100 products and accessories have been classified in the 11 sections for easy and fast reference. The catalog number is 956, and it will be mailed without charge to all spray-painting equipment users who request it on company letterhead. Address your request to **Binks Mfg. Co., 3122 Carroll Ave., Chicago 12.**

#### CLEVELAND TRENCHER —

The new Cleveland Model 240 trencher for miscellaneous construction projects and pipelines is described in 4-p, 2-color bulletin recently published. This trencher mounted on full crawlers digs up to 36 in. wide and down to 6 ft 3 in. deep. The bulletin also contains a table of the 48 available digging wheel and crawler speed combinations which provide more than 33 digging speeds ranging from .5 ft to 37.3 ft per min and a table of optional digging widths. Ask for Bulletin S-119 from **The Cleveland Trencher Co., 20100 St. Clair Ave., Cleveland 17, Ohio.**

#### VIBRATING SCREEN—

Subject of a 16-p bulletin is the new improved Mesabi vibrating screen built specifically for severe service applications. Emphasized throughout this new bulletin, No. 651, are the extra strength and wearability of the redesigned screen. The screen is suitable wherever scalping or sizing of ores or aggregates demand equipment that can stand up under the roughest operating conditions. The new screen includes 18-in. channel reinforced with 8-in. wide flange cross-beams on 4-ft widths, 18-in. I-beams reinforced with 8-in. wide flange cross-beams on 5- and 6-ft widths. Pan sides are 3/4 in. thick on 4-ft widths, 1/2 in. thick on 5- and 6-ft widths. Heavier inner bearings assure greater freedom. Free bulletins on this equipment may be obtained from **Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.**

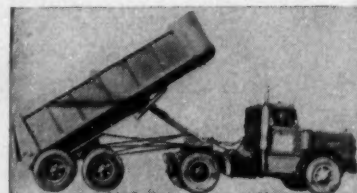
**JOB REPORT—**A special report on industrial plant construction features powered buggies as exclusive materials-handling equipment on the entire project. Of special interest is the elimination of hoists for handling materials to the second floor by the use of a ramp.—**The Prime Mover Co., Muscatine, Iowa.**

## WHERE TO BUY

Featuring additional Products, Specialties and Services for the Construction Industry

### ROAD CONSTRUCTION COMPANIES

● We offer for your consideration a winch operated dump trailer that is capable of handling larger loads cheaper and faster than anything on the market today.



Our coverage on this item is: New York, New Jersey and New England.

Our representative will meet with you anytime.

#### TRANSIT SALES & SERVICE, INC.

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FRANK T. MEE, JR., TEL. 3-4437

## STOP that WATER

With FORMULA NO. 640, a clear liquid which penetrates 1" plus in concrete, brick, stucco, plaster, etc. Seals out water, dirt. Holds 20' head. Use outside and in. Preserves all absorbent materials. Sold 14 years. Quick, economical, sure. \$3 in 55's. Free sample. See Sweet's.

HAYNES PRODUCTS CO., OMAHA 3, NEBR.

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Fast, easy way to CUT WIRE ROPE

Low cost, portable, safe For details mail ad to MONTGOMERY MFG. CO.

24Y Austin St., Newark 5, N.J.

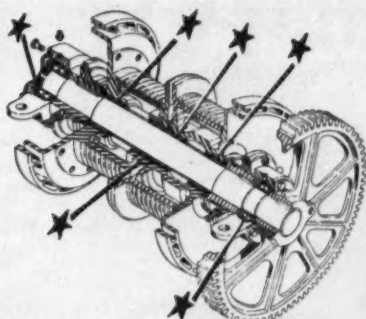
Dealers wanted



## This WHERE TO BUY Section

supplements other advertising in this issue with these additional announcements of products and specialties essential to modern construction and maintenance of equipment. Make a habit of checking this page, each issue.

DEPARTMENTAL STAFF  
CONSTRUCTION METHODS



STARS INDICATE LOCATION OF ANTI-FRICTION BEARINGS IN DRUMS AND PILLOW BLOCKS

# LIMA'S

shafts and drums roll  
on anti-friction bearings



LIMA Type 34, equipped with  $\frac{3}{4}$  yd. dipper, 18' boom, 17' dipper handle.

As a result of twenty-five years' experience with anti-friction bearings, Lima design engineers know exactly where to put them to give you maximum benefits. This cut away view shows how Lima utilizes anti-friction bearings in the drums. X-ray vision would show you how Lima uses them throughout the main machinery on all shafts and other important parts.

This modern means of eliminating destructive friction benefits LIMA owners through faster operating speeds and lower upkeep. Anti-friction bearings also maintain perfect shaft alignment and insures smoother, easier clutch action.

## COMPARE! No other machine gives you as much as LIMA!

1. Bronze bushings in tread, idler and drive rollers are protected by piston-type dirt seal rings and retainers.
2. All gears, smaller parts and shafts which are subject to extra wear are flame or induction hardened for longer life.
3. Main machinery is placed well back of center of rotation to eliminate excess counterweight.
4. Anti-friction bearings, used at all important bearing points, reduce destructive friction, fuel consumption and lubrication requirements.
5. Big capacity drums and sheaves lengthen cable life by reducing the need for double wrapping and sharp bends in cable.
6. Propel and swing gears and power take-off are enclosed in a sealed oil bath for dirt elimination and smoother, quieter operation.
7. Torque converter (optional) automatically adjusts speed to load requirements, minimizing shock loading, making performance smoother and faster.
8. Wherever you are, you can depend on skilled service and nearby warehouse stocks of parts to keep your LIMA on the job continuously.

COMPARE and you'll specify LIMA for shovels ( $\frac{3}{4}$  yd. to 6 yds.), cranes (to 110 tons) and draglines (variable). Smaller capacities available on rubber.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

# LIMA

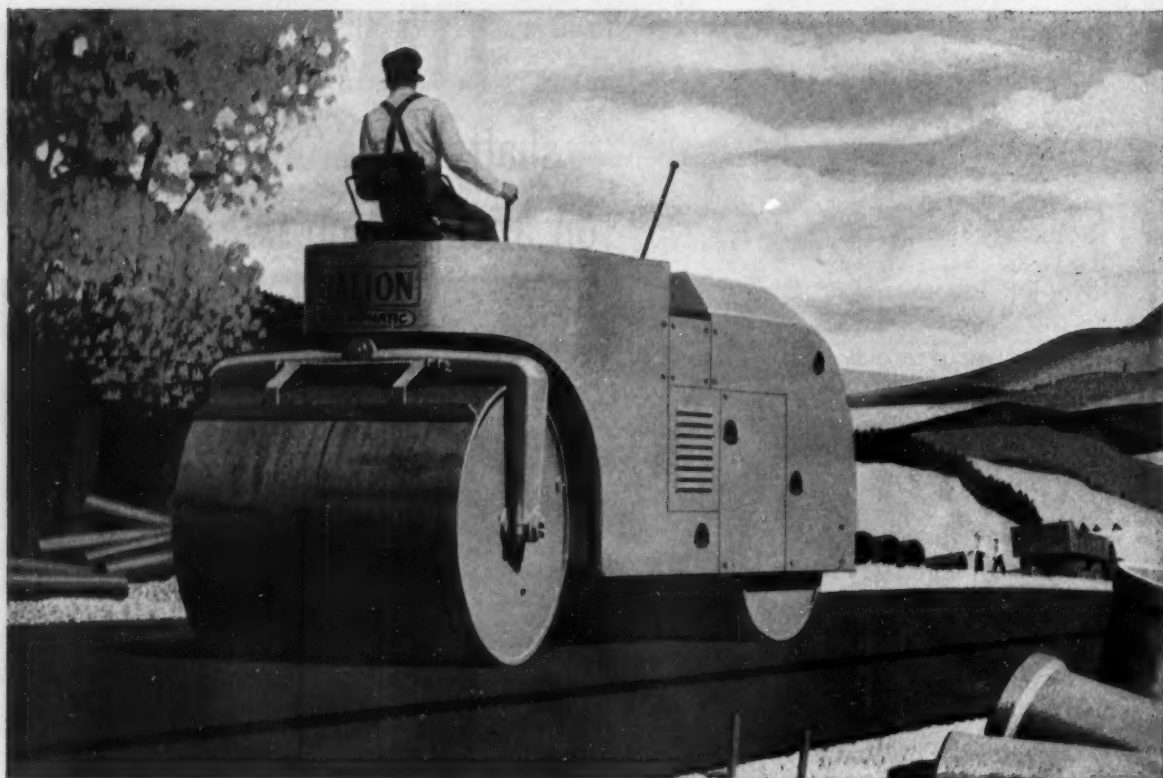
SHOVELS • CRANES  
DRAGLINES • PULLSHOVELS



BALDWIN-LIMA-HAMILTON CORPORATION  
Construction Equipment Division  
LIMA, OHIO, U.S.A.

Construction Equipment Division





## **NEW GALION ROLL-O-MATIC WITH TORQMATIC CONVERTER**

**rolls 10% more surface per day**

**G**ALION—one of the world's largest manufacturers of road rollers—now offers four new gasoline-powered ROLL-O-MATIC tandem rollers equipped with Allison TORQMATIC Converters.

This efficient combination torque converter and fluid coupling makes ROLL-O-MATIC simpler to operate. It eliminates the master clutch. There are no gears to shift.

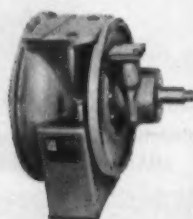
ROLL-O-MATIC rolls smoother in either direction. With the governor directly on the tailshaft it has quicker pickup—takes guesswork out of reversing. Rolling speed is automatically maintained up hill—on the level—down hill and on curves, by means of the combination of the TORQMATIC Converter and tailshaft governor.

The maker reports the operation is so smooth that at least 10% more surface can be rolled per day. And fuel consumption is reduced as much as 25%.

The applications of Allison TORQMATIC Converters are broadening rapidly. With units in a new range from 40 to 150 horsepower to fit both gasoline- or Diesel-powered engines, more than likely you, too, can gain the many moneysaving benefits of this drive. The completely *self-contained* converters are compact, easy to install and surprisingly low in price.

Check your equipment manufacturer or dealer or write us for full particulars.

ALLISON DIVISION OF GENERAL MOTORS  
Box 894T, Indianapolis 6, Indiana



*Allison*  
**TORQMATIC DRIVES**

**WIRE ROPE CATALOG**—A new publication entitled "Wire Rope Recommendations" has been designed to provide a simplified ordering plan and reference for wire-rope users. This catalog is divided into 16 sections, one for each of the major industries which uses wire rope. Each section is clearly marked by index tabs for quick reference. It is being distributed by **John A. Roebling's Sons Corp.**, 640 South Broad St., Trenton, N. J.

**SCREW CONVEYORS**—Included in this catalog ID-541, are various sizes and types of conveyors illustrated with photographs, line drawings and dimensions. Also given is engineering data which should be helpful to guide the user in the proper selection of size and type of conveyor. You can get this booklet free by writing the **Continental Gin Co., Industrial Div.**, Box 2614-0, Birmingham 2, Ala.

**PUMP FUNDAMENTALS**—A 12-p booklet, interesting and instructive, titled "Centrifugal Pump Fundamentals," should be useful to all Ingersoll-Rand owners and prospects. It explains the principles of operation, defines the various terms used in pump calculations and works out typical every-day pump problems. If you should like a personal copy of this booklet write to **Ingersoll-Rand Co., Cameron Pump Dept.**, 11 Broadway, New York 4, N. Y.

**PORTABLE BATCH PLANT**—A fully portable batch plant, the Conveyco 5½-yd., is described and pictured in a 12-p bulletin which also illustrates portable bucket elevator units for handling aggregates and the portable re-circulating bulk-cement silos for use with batch plant. You can obtain further information about these products by writing for Bulletin P4-80/125, **The Conveyor Co.**, 3260 E. Slauson Ave., Los Angeles 58, Calif.

**CRANE ACCESSORIES**—Specifications and other engineering data on crane runway rails and accessories are included in new literature entitled "Crane Runway Rails and Accessories." Among the accessories described are crane rails, angle bars, crane stops, rail clips, bolts, hook and anchor bolts, and bearing plates. The **L. B. Foster Co.** has offices in Pittsburgh, New York, Chicago, Houston and Los Angeles.

**COMPLETE PRODUCT CATALOG**—Compact catalog covering the complete line of Gardner-Denver pumps, compressors, rock drills and pneumatic equipment used in construction, mining, petroleum and general industry is available in a single sheet bulletin form bound with plastic binding, complete with index divider. Copies of this presentation are available from the **Gardner-Denver Co.**, Quincy, Ill.

## Underneath the River!



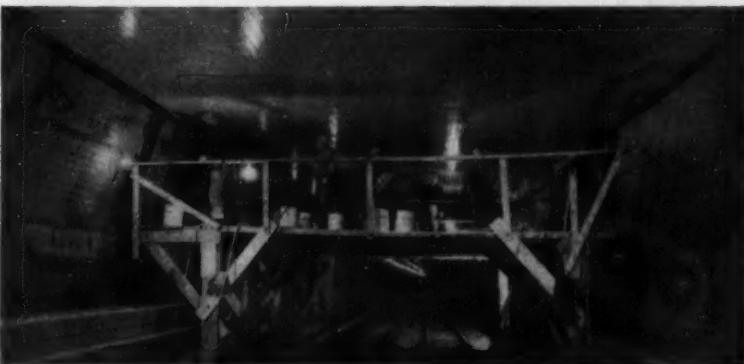
THORITE Patching Mortar Crew at work in Air Tunnel under East River, New York.



Sealing Leaks in Traffic Tunnel with WATERPLUG.



Sealing Drain Pipe Channels in Tunnel with WATERPLUG.



WATERPLUG Crew at work, before placing of tile lining, Battery Tunnels, East River, New York.

On many of the largest underground projects in the Americas and in foreign countries WATERPLUG solves, for the contractor, his water problems. The job may be small or it may be large, the results are the same—Successful.

Get our pictorially-described literature, "HOW TO DO IT" and specification guide.



**STANDARD DRY WALL PRODUCTS INC.**  
NEW EAGLE, PENNSYLVANIA



**Ramset**  
FASTENING SYSTEM

helps beat the  
clock on urgent  
Aqueduct  
repaving job

## ...and saves \$2,380 in fastening costs

TIME was the big factor in resurfacing the Lone Pine Section of the Los Angeles-Owen River Aqueduct. Wood and steel forms had to be fastened to the old concrete. Steel wire mesh reinforcing must be supported. Old-fashioned methods were too slow. By using RAMSET JOBMASTERS and 6" Tru-Set drive pins to do the anchoring work, the time schedule was met and an estimated \$2,380 saved in fastening costs.

Just as in this aqueduct job, contractors and engineers the country over depend on RAMSET JOBMASTERS and Tru-Set fasteners for fast, economical, easier anchoring into steel and concrete.

Three JOBMASTER tools and 65 sizes in 6 types of fasteners offer the widest utility and provide exactly what is needed for any specific job, from light-duty work up to anchoring into the hardest concrete or into mild steel up to 1" thick. Fastenings can be made as fast as 3 per minute—with 50 per hour an every-day figure, and cost-reduction in proportion.

For on-your-job proof of the ability of RAMSET SYSTEM to save you time, money and trouble on new construction, modernization or maintenance, call your local RAMSET dealer. Or, write us for details and new Specification Manual.

**Ramset Fasteners, Inc.** RAMSET DIVISION  
OLIN INDUSTRIES INC.  
12103 BERE A ROAD • CLEVELAND 11, OHIO

FIRST IN POWDER-ACTUATED FASTENING



## BIG JOBS OF THE MONTH ...

Continued from page 22

**Corbetta Contracting Co. Inc.**, 220 E. 42 St., New York, N. Y., 2.94 mi. State Thruway's Southern Westchester connection, Yonkers; **The Tomlinson Construction Co. Ltd.**, Rotterdam Junction, work of 13.32 mi. Grand Island portion of New York State Thruway's Niagara Section between Buffalo and Niagara Falls, Erie, Co., for Bureau of Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany. \$15,416,893 and \$4,-250,001 respectively.

**Joseph Skilken & Co.**, 383 South 3 St., Columbus, Ohio, shopping center, Collier Twp., near Bridgeville, Pa., for Great Southern Pittsburgh Mart, Inc., Berger Bldg., Pittsburgh, Pa., approximately \$10,-000,000.

**C. E. Youngdahl & Co., Inc.**, 29-28 41 Ave., Long Island City, N. Y., general construction Bay View Houses, Brooklyn, N. Y., for New York City Housing Authority, 299 Broadway, New York 7, N. Y., \$10,268,000.

**Ebasco Services, Inc.**, 2 Rector St., New York 6, N. Y., design and construct oil refinery, Port Everglades, Fla., for Miami Oil & Refining Co., Boca Raton, Fla. \$15,-000,000.

**Harris Structural Steel Co.**, 419 Fourth Ave., New York 10, N. Y., Contract No. 2 superstructure Kingston-Rhinecliff Bridge, Ulster and Dutchess Counties, for New York State Bridge Authority, 22 Ferry St., Kingston, N. Y. \$9,496,-431.

**H. J. Williams Co. Inc.**, York, Pa. 2.96 mi. highway extension, Lower Macungie, Upper Macungie and South Whitehall Townships, Lehigh Co., Pennsylvania Turnpike Comm., 11 N. 4 St., Harrisburg, \$3,334,253.

**Darin & Armstrong, Inc.**, 2041 Fenkell St., Detroit 23, Mich., grade-crossing bridge Eight Mile Rd. and Woodward, Wayne Co., for State Highway Dept., Stevens T. Mason Bldg., Lansing, Mich. \$3,-386,000.

**Stone & Webster Engineering Corp.**, 49 Federal St., Boston, Mass., design and construct Riverside generating station addition, Savannah, Ga., for Savannah Electric & Power Co., 27 West Bay St., Savannah, Ga. \$6,000,000.





• The sheaves of this power shovel get a shot of clean new lubricant. The operator is using Alemite Hand Gun 1056-SE. This lever type gun has plenty of power to push out old grease and dirt—has large capacity to service many bearings without refilling.



• Here the Alemite Hand Gun is refilled quickly with Alemite Loader Pump 7181-L. Just eight strokes of the pump fills the gun with no mess, no waste, no troublesome air pockets. Lubricant is protected at all times from dust, dirt and grit that can ruin bearings.

• Turntable bearings are serviced with Alemite Red-A Bucket Pump 7137-A. This pump has large capacity for bearings that require high volume. At the top of the pump is Alemite Dyn-O-Mite Gun 7132 that supplies up to 10,000 pounds pressure with easy one-hand squeeze.



where schedules are tight  
and time is money, it's

# ALEMITE "ON-THE-JOB" LUBRICATION

1. **SAVES TIME!** By bringing clean, fresh lubricant right to the machines . . . where you need it, when you need it.

2. **SAVES MONEY!** By cutting expensive lubrication down-time—increasing output of both men and machines.

3. **SAVES EQUIPMENT!** By helping protect vital bearings against costly wear and time-consuming breakdowns.

• Here an Alemite Tractor Bucket Pump 6521-B gives the positive lubrication protection demanded by bearings of track support rollers against dirt and grit. Engineered to provide both high pressure and volume delivery, this pump has become the standard of the industry.



## ALEMITE

REG. U. S. PAT. OFF.

ALEMITE, Dept. F-94

1850 Diversey Parkway, Chicago 14, Illinois

Gentlemen: Please send me your FREE illustrated booklet showing Alemite "On-the-Job" equipment and containing complete information on Alemite lubrication methods.

Name

Company

Address

City  State



# Dempster-Diggster bucket GETS A FULL LOAD WITH EVERY STROKE!

The hydraulic crowd and hoist operation of the new Dempster-Diggster GRD-101 gives you big shovel advantages in front end loading and excavation work. As shown in the at-work photos at right, here's what happens: Dempster-Diggster moves into material with shovel lowered against front of frame. No wheel traction is used to get excavation power. The hydraulic crowd and hoist moves bucket out and up following contour of material—getting a full bucket with every stroke . . . reducing loading time and idle truck time, thus getting the job done faster!

When you put your Dempster-Diggster into operation, one of the first things you will find is that your entire operation must be geared to a faster pace. This means greater efficiency of equipment and manpower—more profit to you!

Write us asking for Folder No. 3116 giving you complete information on the features of the Dempster-Diggster, including TRUCK-SPEED MOBILITY TO AND FROM JOBS . . . AUTOMATIC BUCKET TRIP . . . MAXIMUM DUMPING AND DIGGING HEIGHT . . . MINIMUM TURNING RADIUS . . . THE SHOVEL WITH TORQUE CONVERTER . . . HYDRAULIC STEERING, etc. Manufactured by Dempster Brothers, Inc.

In photo below camera catches Dempster-Diggster ready to back off and move up to a truck for loading.



**DEMPSTER BROTHERS 394 SHEA BLDG., KNOXVILLE 17, TENN.**



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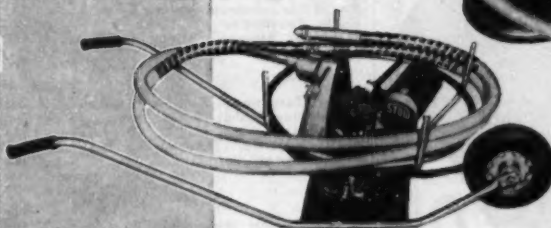
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## New performance features built into **STOW** CONCRETE VIBRATORS

MODEL AG



SHOWN: MODEL BGW. This is the standard STOW model BG vibrator, mounted on wheelbarrow for easy maneuverability. Model BG & BGW feature 2 HP 4 cycle, air-cooled engine; ball-bearing eccentric belt tensioner.

Contractors like STOW vibrators because the high operating speeds of this new STOW vibrator line make possible the use of heavy duty, light weight flexible shafting, and lighter, more efficient vibrator heads. And STOW design provides convenient speed control so that attachments for rubbing, grinding, cleaning may be used directly on the vibrator shafts, making it unnecessary to purchase extra shafts for this purpose.

*The STOW line is complete . . . provides the right vibrator for every job. Complete accessories available. Be sure you see your STOW distributor about the STOW line!*



MODEL J—The lowest priced vibrator in the STOW line. Slower speed means longer, trouble-free operation. Model J features 3600 (max.) VPM, 2 HP 4 cycle air-cooled engine, and direct drive.



MODEL BU—Features 2 HP at 9000 VPM, operates on 115 volts AC or DC with splash-proof, high speed ball-bearing motor.

See how STOW can save money  
for you! Send for Free  
Bulletin 526.



# STOW

MANUFACTURING CO.

31 Shear Street, Binghamton, N. Y.





CHECK your tackle blocks for best service. Worn sheave grooves, bearings and pins are expensive.

## LOWER HANDLING COSTS

are often attained by using "the one BEST block" for a specific load. MADESCO blocks correctly designed and engineered for your specific operation may effect savings YOU can benefit from!

Twenty-five years' experience in designing and making blocks for "a-thousand-and-one" different uses means that MADESCO blocks help speed hoisting, give trouble-free service, help prolong rope life.

Write—today—for bulletins and consult us about your specific needs.

**MADESCO TACKLE BLOCK CO.**  
EASTON, PA.

# MADESCO

## BLOCKS

MAE-M593-2-54

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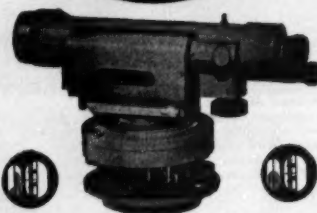
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Surveying experts favor

# FENNEL

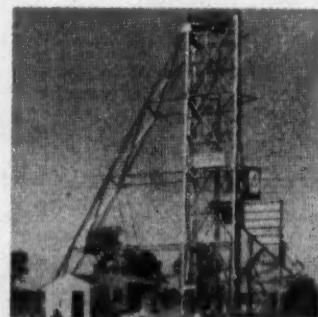
INSTRUMENTS



"NITAC" — World's only level with split bubble, erect image. One of many super-fine levels, transits, theodolites, made by Fennel's old-world craftsmen. Performance-proved in 58 countries. Send for particulars, prices.

**FENNEL INSTRUMENT CORP. OF AMERICA**

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**SAFE — DEPENDABLE**

**MAYO ALL-STEEL HEADFRAMES**

Because conditions vary so greatly from one mine or tunnel job to another, a careful analysis of your operation should be made before attempting the design or construction of a headframe. Our twenty-five years of experience on important installations in America, Europe and South America is at your disposal.

Write for Bulletin No. 20, or send details.

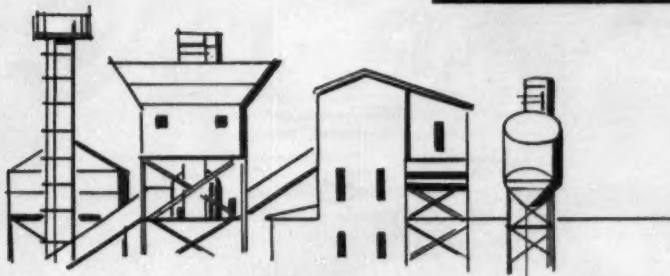
Steel Forms • Headframes • Musk Bins  
Shields • Air Locks • Locomotives  
Mine Cars • Grouters



# MAYO

TUNNEL AND MINE  
EQUIPMENT  
LANCASTER, PA.

# BATCHING PROFITS ARE AUTOMATIC WITH BUTLER **AUTOMATION**



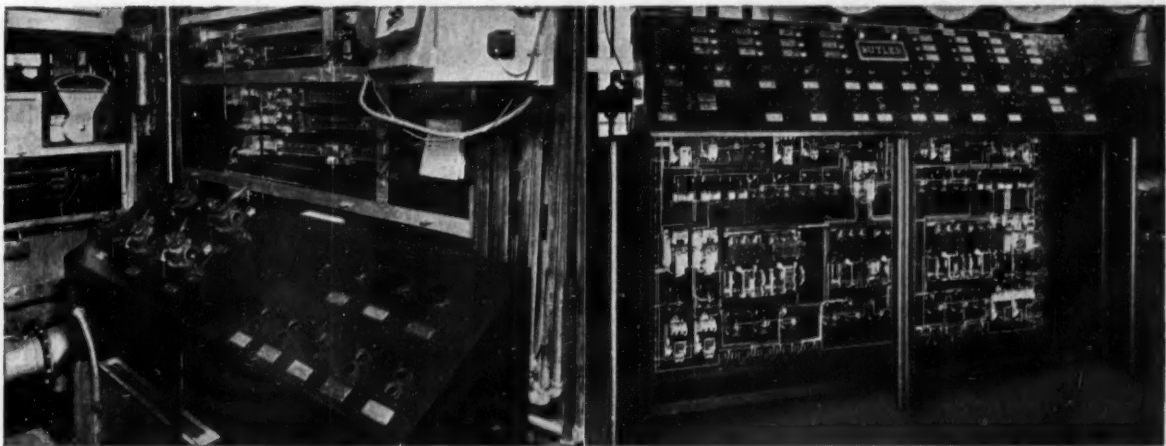
The more you take the costly and variable "human element" out of any batching operation — in Roadbuilding, in Ready Mixed Concrete or in Concrete Products Plants — the higher will be your production and the lower your costs.

Butler Engineers hold unqualified leadership in plant "automation". For example, today

Butler Plants can be so completely controlled electrically that batching is pre-selected and completely eliminates operator's mistakes.

Not all operations justify complete automation. But the BUTLER Engineer is best qualified to determine to what *degree* your plant should be made automatic — for the greatest profit at the lowest investment.

**That's why it is wise to consult the Butler Engineer — first.**



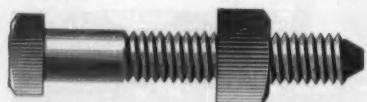
## **BUTLER BIN CO.**

949 BLACKSTONE, WAUKESHA, WISCONSIN

# Here are the **CONSTRUCTION FASTENERS** you need



**TIE-RODS.** Come in two types — rolled-thread rods in sizes up to 1½ in., and plain or upset cut-thread rods in diameters up to 4½ in. All lengths. Straight or bent. Single or multiple units. Asphaltum-dipped or hot-dip galvanized.



**FITTING-UP BOLTS.** Furnished untreated or heat-treated, with National Coarse or Modified Acme threads. All types come with semi-cone points.



**MACHINE BOLTS.** Made to ASTM Spec. A-7. Also come in standard grades of carbon or alloy steel. Cut or rolled threads, and square, hexagon, tee, button and countersunk heads. Wide range of sizes.



**TIMBER BOLTS.** Four diamond-shaped lugs under head for maximum grip. Will not turn in timber. Eliminates counter-boring and retards dry rot.



**SPIKES.** Come with diamond, button, nail, countersunk, and hook heads. All types have wedge points.



**WASHERS.** Made from steel plate or bars. Furnished round (standard and dock), square, and rectangular. All sizes. Can be supplied galvanized.



**HOOK BOLTS.** All sizes. Furnished with round, square, and right-angle bends. Also special bends. Can be galvanized to ASTM Spec. A-153.



**NUTS.** Hot-pressed. Cold-punched. Semi-finished. Square and hexagon. Furnished in all types and sizes.



**TURNBUCKLES.** Come in diameters from ¾ to 2¾ in., with 6-in. openings between heads. Right- or left-hand threads, with or without stub ends.



**CLEVISES.** Drop-forged. Generally tapped to Coarse-Thread Series, Class 2. Right- or left-hand threads, with or without pin and cotter.



**SLEEVE NUTS.** Tap diameters from ¾ in. to 4 in. Usually tapped right-hand at one end, left-hand at other. Also furnished with right-hand threads throughout.



**BETHLEHEM STEEL COMPANY**  
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation



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# SANSTORM IT!

blast your cleaning costs



More and more construction companies are cleaning steel fabrications, masonry, forms, equipment cheaper and quicker with Sanstorms — the sandblasting machines unequalled for low cost service.

Because Sanstorms are non-plug with any abrasive the job requires — gentle to smooth off or tough to skim off heavy scale — you get trouble-free performance with a Sanstorm.

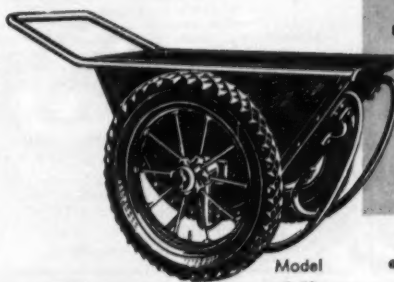
Write today for **FREE** literature. Add any questions about your cleaning problems for Sanstorm recommendations without cost or obligation.

**SANSTORM**  
MANUFACTURING COMPANY

P. O. BOX 1173-17, FRESNO, CALIFORNIA



**BUILT STRONGER  
TO LAST LONGER!....**



**JACKSON  
CONCRETE  
CARTS**

Here is a Concrete Cart That Has Earned a Reputation with Contractors Everywhere

Model  
8-88



Grueling construction work is a harsh but accurate way to test the soundness of concrete carrying equipment. The ease with which the rugged Jackson concrete carts have passed this "test" is ample proof of the sturdy construction and ease of handling that have made them the favorites of contractors. Write or phone today for complete details on a Jackson concrete cart to fill **your** needs.

**Jackson** MANUFACTURING COMPANY  
HARRISBURG, PENNA.

Oldest and largest wheelbarrow maker in America

# SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT  
BUSINESS:

**OPPORTUNITIES**

EQUIPMENT  
USED OR RESALE

## UNDISPLAYED — RATES — DISPLAYED

\$1.50 per line, minimum 3 lines. To figure advance payment count 5 average words as a line. Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Positions Wanted undisplayed advertising rate is one-half of above rate payable in advance.

Box Numbers—count as one line.

Individual Spaces with border rules for prominent display of advertisement.

The advertising rate is \$15.75 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

An advertising inch is measured 1/8" vertically on one column, 3 columns—30 inches—to a page. Send New Advertisements to New York office, 330 W. 42nd St., N.Y. 36, N.Y. for October issue closing September 23rd.

## FOR SALE HIGHEST BIDDER USED EQUIPMENT— LOCATED OAK RIDGE, TENN. CLOSING DATE— SEPTEMBER 28, 1954

- 1—CRANE, Lima Crawler, Model #802, w/90' Boom, w/shovel attachment, 2 Cu. Yd.
- 1—CRANE, Lorain Crawler, Model #80, w/shovel attachment, 1 1/4 Cu. Yd., w/50' Boom.
- 1—CRANE, Lorain Crawler, Model #78, w/85' Boom, w/20' Jib Boom, Backhoe Attachment, 1 1/2 Cu. Yd.
- 4—LIGHT PLANTS, Empire, 5 KW output, Model #24.
- 2—CLAMSHELL BUCKETS, Owens, Model #S, 1 1/4 Cu. Yd. Cap.
- 5—CONCRETE BUCKETS, Johnson, Model #325, 1 Cu. Yd. Cap.
- 1—COMPRESSOR, Gardner-Denver, Model #ACB-775, Shop Type, w/Century Electric Motor.
- 1—PUMP, Water, Carter Model #10MCW, 2", w/Wisconsin Engine, Model AKN.
- 1—PUMP, CH&E Double Diaphragm, 4", w/Wisconsin Engine, mounted on 4 rubber tires.
- 1—BOILER, Vertical Fire Tube, Schwab Boiler and Machine Co., Oil Injection Fired, skid mounted, operating pressure 100 lbs./sq. in.

For particulars contact Purchasing Agent:  
**MAXON CONST. COMPANY, INC.**  
P.O. Box "S", Oak Ridge, Tennessee  
Telephone 5-3542—Station 254

### CRAWLER TRACTOR GRADER BUILDER 141

1—Allis Chalmers HD15 Diesel has performed no heavy digging. Only operated approx. 500 hrs. to compact and control coal storage pile.

Priced low for quick sale. Contact W. C. Campbell  
**OLD BEN COAL CORP.**  
WEST FRANKFORT, ILL.

### FOR SALE END LOADER—OLIVER OC3

Extra heavy teeth. Used two months on particular job. Completely reconitioned. Excellent condition. Purchase price new \$3,750.00  
**SALE PRICE ..... \$1,950.00**

**COAKLEY & BOOTH, INC.**  
55 East 43rd St. New York 17, N. Y.

## EXPORT SALES TRAINEES

Excellent opportunities now exist in our Export Sales Department for recent college graduates with training in Civil, Agricultural, or Mechanical Engineering; or related fields. Foreign assignments are made upon completion of training.

Men interested in these openings are invited to call or write to:

**EMPLOYMENT DIVISION  
CATERPILLAR TRACTOR CO.  
PEORIA, ILLINOIS**

### REPLIES (Box No.):

Address to office nearest you  
NEW YORK: 330 W. 42 St. (86)  
CHICAGO: 520 N. Michigan Ave. (11)  
SAN FRANCISCO: 88 Post St. (4)

### POSITIONS WANTED

GRADE FOREMAN and engineer with wide experience in super-highway, municipal, railroad and airport construction. Conscientious, aggressive and in good health. Desire salaried position with grading or general contractor. Will travel. PW-3566, Construction Methods & Equipment.

### WANTED

Construction, light equipment for use in home building, etc., wanted for our dealers overseas. Suitable for sale or rental. Exclusive agency basis. Poma-Stone International Ltd., 320 Fifth Avenue, New York 1.

### WANTED

ANYTHING within reason that is wanted in the field served by Construction Methods & Equipment, can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

### ENGINEERS—FOREMEN—OFFICE MEN

Learn latest methods to organize and run work. Prepare for the top jobs.

Send post card for details

**GEO. E. DEATHERAGE & SON  
CONSTRUCTION CONSULTANTS  
411 5th Ave., Lake Worth, Florida**

### GIANTS UNDER THE EARTH

The Construction of the Brooklyn-Battery Tunnel This is the story of the key men of the miraculous 20th century—those hardy human sanibogs who dug under water and blasted through earth and rock to build the slick, modern tunnels we use today for fast motor and railroad traffic.

Illustrated and photos. Per copy ..... \$1.00  
Send check or money order to  
**PATRICK J. COSTELLO**  
182 E. 40th St. New York 17, N. Y.

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## SEARCHLIGHT SECTION

(Classified Advertising)

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## CONSTRUCTION METHODS AND EQUIPMENT

330 West 42nd St., New York 36—LO 4-3000

**E. E. WEYENETH, Advertising Sales  
Manager**

**HOWARD T. OLSEN, Business Manager**

Sales Representative

New York 36, 330 W. 42nd St.

**H. T. BUCHANAN**

Philadelphia 3, 17th and Sansom Sts.

**R. H. LARSEN**

Atlanta 3, 801 Rhodes-Haverty Bldg.

**W. D. LANIER, JR.**

Cleveland 15, 1510 Hanna Bldg.

**W. E. DONNELL**

Chicago 11, 520 N. Michigan Ave.

**KNOX BOURNE, D. J. McGRATH**

St. Louis 8, Continental Bldg.

**B. F. HORN**

Dallas 1, First National Bank Bldg.

**J. H. CASH**

Los Angeles 17, 1111 Wilshire Blvd.

**H. L. KEELER**

San Francisco 4, 68 Post St.

**R. E. DORLAND**

### Other Sales Offices

Detroit 26: 856 Penobscot Bldg.

Pittsburgh 22: 738 Oliver Bldg.

Boston 16: 350 Park Square Bldg.

London E.C. 4: 95 Farringdon St.

## Somebody—Somewhere,

needs your idle equipment! Reach that buyer quickly and economically thru the

## "SEARCHLIGHT SECTION"

The meeting place of Used Equipment Buyers and Sellers

# It costs less to **PUSH PIPE** than dig ditches



*cut job costs and installation time . . .*

## **USE RODGERS HYDRAULIC JACKING UNITS**

You'll cut pipe laying expenses and do the job faster and better by *pushing* pipe under highways, railroad tracks, and other obstructions. You'll avoid time-consuming ditching, backfilling, tamping and paving operations that delay the job and roll up the cost.

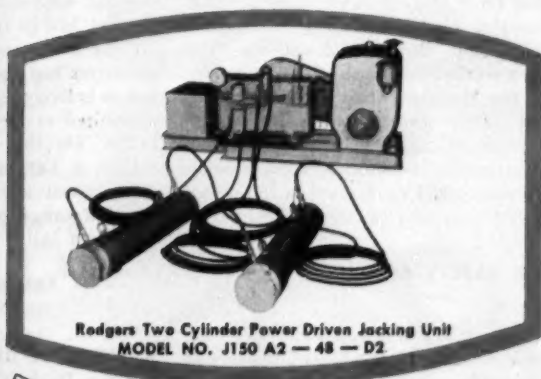
Rodgers Hydraulic Jacking Units can be used wherever you want to **PUSH**, **LIFT** or **PULL**. Multiple jack installations provide equal pressing or lifting power at all points and are ideal for raising or positioning large structural sections.

Photo shows a public utilities crew pushing a 16" diameter steel pipe in 16-foot sections through 44 feet of earth. Two 150-ton capacity, 30-inch ram travel, double-acting Rodgers Jacking Cylinders are doing the job. A hand operated Rodgers Hydraulic Pump furnishes equal power to both jacks.

Rodgers Jacking Cylinders used singly or in groups provide steady, precisely controlled power to jack steel casing, corrugated pipe or compressed concrete tile—and they can be used for all types of accurately controlled lifting operations on structures.

Rodgers Jacking Cylinders are available in capacities from 50 to 600 tons with standard ram travels from 6 inches to 48 inches. Longer ram travels to 72 inches available on special order. Tunnel contractors are invited to inquire about our special hydraulic equipment for tunnel shield construction which includes a series of special hydraulic cylinders, power pumps and controls.

A selection of hand or power operated Rodgers hydraulic pumping units offer the exact jacking combination needed for your job. Let Rodgers engineering department assist you in your selections.



Rodgers Two Cylinder Power Driven Jacking Unit  
MODEL NO. J150 A2 — 48 — D2



Send for your free copy of  
**Rodgers Bulletin, 317A.**

It contains a complete description of Rodgers Hydraulic jacking units, quick couplers, valves and hoses, also a description of hydraulic equipment used in the construction of tunnel shields.



## ---Rodgers Hydraulic Inc.

7403 WALKER ST., MINNEAPOLIS 16, MINN.



# Methods Memo . . .

**TOLL ROADS** are big business, as we all know. Here is another indicator: United States Steel Corp. reports that the steel industry probably will furnish about 600 tons of steel for each million dollars spent on the roads.

**WHILE SHOOTING PHOTOS** of the new Caterpillar D9X out on the Ohio Turnpike recently, a tractor operator mistook us for a manufacturer's representative and requested a give-away watch-fob. This isn't the first time we've had such a request, but this time we were curious because the man was wearing a husky serviceable wrist watch, and we couldn't figure out why he would want a watch-fob. His answer was simple: "Oh, I swap fobs with other operators. I've got quite a collection." All of which makes us wonder just how many manufacturers do give away watch-fobs.

**NOT A SINGLE LOST-TIME INJURY** over a period of 18 months on a more-than-usually hazardous construction operation involving 200,000 man-hours is a mighty fine performance. The record was set by the McCarthy Improvement Co., Davenport, Iowa, on the building of Stage 1 of the Keokuk Lock, a Mississippi River navigation project of the Corps of Engineers.

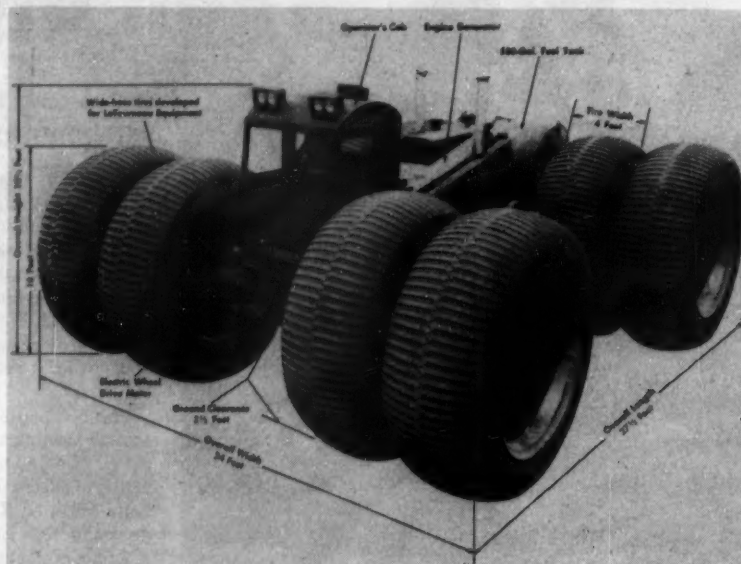
The job involved some 28,936 yd of rock excavation, 10,045 yd of rock fill, 7,316 yd of compacted dirt fill, 22,706 yd of concrete, 1,200 lin ft of cofferdam, 974 lin ft of guide wall, three 26x30-ft mooring piers, and cost approximately \$1,600,000. During peak activities, 150 men worked on the site.

The McCarthy Co. received the highest safety award of the Bituminous Casualty Corp. which underwrote the contractor's workmen's compensation insurance and cooperated in setting up safety programs on the job.

## RE: SAFETY BELTS

Sirs:

On page 212 of the August 1954 issue you mention the possibility of using seat belts for operators of earthmoving equipment. You may be interested to know that Mr. Thomas Soule, Chief Safety Engineer of Industrial Indemnity Company of San Francisco has recommended the use of safety belts, identical with those used in planes, for operators of such equipment, and for all motor vehicle drivers, and passengers in private cars. The belts are attached to the



**R G'S SNOW-BUGGY**—Mammoth eight-wheel vehicle was built by R. G. LeTourneau, Inc. as exploratory traveler and prime-mover in the North country. Was engineered around the electric wheel, weighs 23 tons, travels at 8 mph. Note specifications on photograph.

floor of automobiles, and similarly secured in other equipment. The belt can be released in about half a second with one hand, and requires about ten or fifteen seconds to secure.

On a dirt moving job near San Francisco, where these belts were used, a carry-all went out of control and when stopped, had its front wheels projecting over an overpass above a highway. If the driver had not been secured by his belt, it is likely that he would have been catapulted to the highway some 20 ft below. On this same job, somewhat earlier, a Cat operator fell from the driver's seat and suffered a fractured leg and other injuries. He was not wearing a belt.

EDGAR N. GOLDSTINE  
Consulting Safety Engineer,  
San Francisco

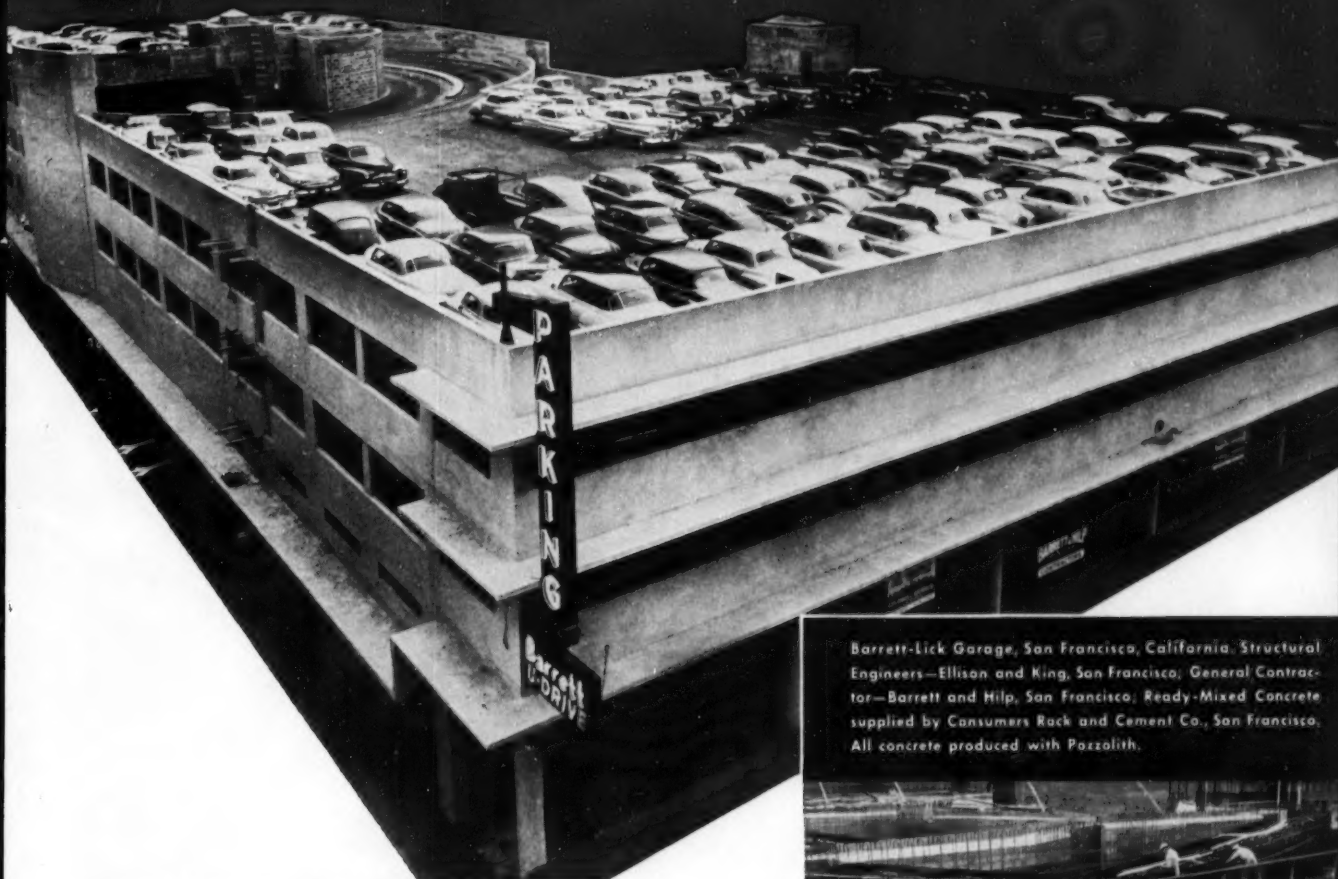
**A ONE-CENT BID** got a job recently for the Davis Construction Corp. of Hicksville, N. Y. Davis is getting one cent to excavate 50,000 yd of earth on a Nassau County job. Second low bidder wanted 98¢, the third low asked \$1. Sounds cockeyed, but fill is hard to get in that area. So, the successful bidder will dig (almost for nothing) and use the material elsewhere on his operations, or sell it.

**TIRE RING FELS MAN.** That newspaper headline caught our eye recently. Charlie Jones was inflating a large truck tire when the retaining ring blew off and struck him on the head. He received a fractured skull, severe scalp lacerations and lost several teeth. Air under pressure can be dangerous. Next time you fill a big tire, be sure to protect head and body with a sturdy barricade. Keep it 100% safe, no matter how careful you are in mounting.

**FULL LOADS, BOTH WAYS,** is the happy solution of the Southwest Portland Cement Co., Victorville, Calif., for its cement transporters. The company employs Mack diesel truck-tractors pulling a train of two trailers—each equipped with a cement hopper and a fuel tank. Each unit hauls bulk cement from Victorville to Los Angeles and carries fuel oil on the return trip.

To accomplish this unique operation, each trailer has a cement hopper fabricated around the cylindrical fuel-oil tank. The hopper holds 121 bbl of cement, a payload of approximately 22½ tons. The fuel-oil tanks carry 5,860 gal for a corresponding payload of about 24½ tons. Either way, the load remains within the state's legal limit of 76,800 lb GCW.

world's heaviest prestressed girders here...



Barrett-Lick Garage, San Francisco, California. Structural Engineers—Ellison and King, San Francisco; General Contractor—Barrett and Hilp, San Francisco; Ready-Mixed Concrete supplied by Consumers Rack and Cement Co., San Francisco. All concrete produced with Pozzolith.

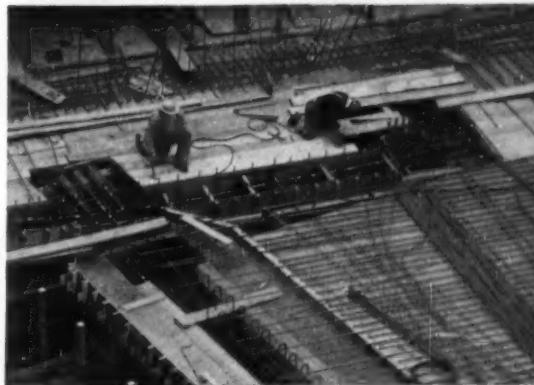
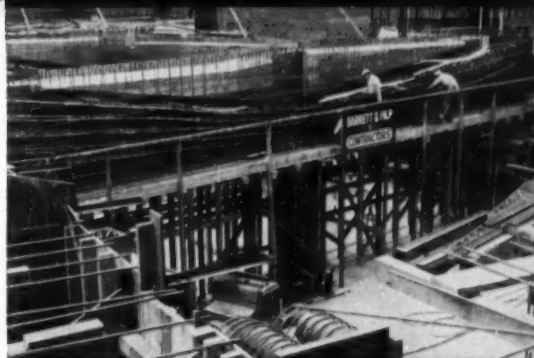
## POZZOLITH\* an aid in meeting concrete requirements

This project represents the successful solution of many engineering problems. One was to produce concrete of the required strength and workability with low unit water content...to obtain quality and economy.

As in the case of many other structures built during the last 20 years, builders found that Pozzolith enabled them to produce a mix with the least amount of water. Result—better quality concrete plus a savings.

By reducing water, Pozzolith provides these well known benefits of low unit water content—reduced bleeding and segregation, minimized shrinkage, low permeability, increased bond-to-steel and improved durability. Full information on request.

\***POZZOLITH**...the cement-dispersing, water-reducing agent which makes available the optimum amount of air in concrete and fully complies with the water-cement ratio law. Added to the mix at the mixer. Pozzolith was developed by The Master Builders Co. in 1932.



*The*

**MASTER**



**BUILDERS**

*Co.*

CLEVELAND 2, OHIO - TORONTO, ONT.

Subsidiary of American-Marietta Company

Circle address, Mountfield, New York

# "Twin" loads 16 bank yards in less than a minute..with help of TIMKEN® bearings

THIS big Euclid Twin-Power Scraper is working on a mountainous highway relocation job in North Carolina. Self-loading in a downhill cut, it consistently loads 16 bank yards in less than a minute!

One reason for this excellent performance: the "Twin" has 20 Timken® bearings in wheels and other key points. These bearings reduce friction, make the giant machine operate more smoothly and easily.

The diagram below shows how the wheels are mounted. With the "Twin" loaded, these wheel bearings take tremendous loads which makes Tim-

ken bearings ideal for the job. They carry the load on a full line contact between their rollers and races and this gives them inherently high capacity.

When the "Twin" rambles over uneven terrain, these wheel bearings must take heavy sidewise "thrust" loads in addition to the customary radial loads. That's another big advantage of Timken bearings: their tapered design enables them to take both radial and thrust loads in any combination so that no extra thrust devices are needed.

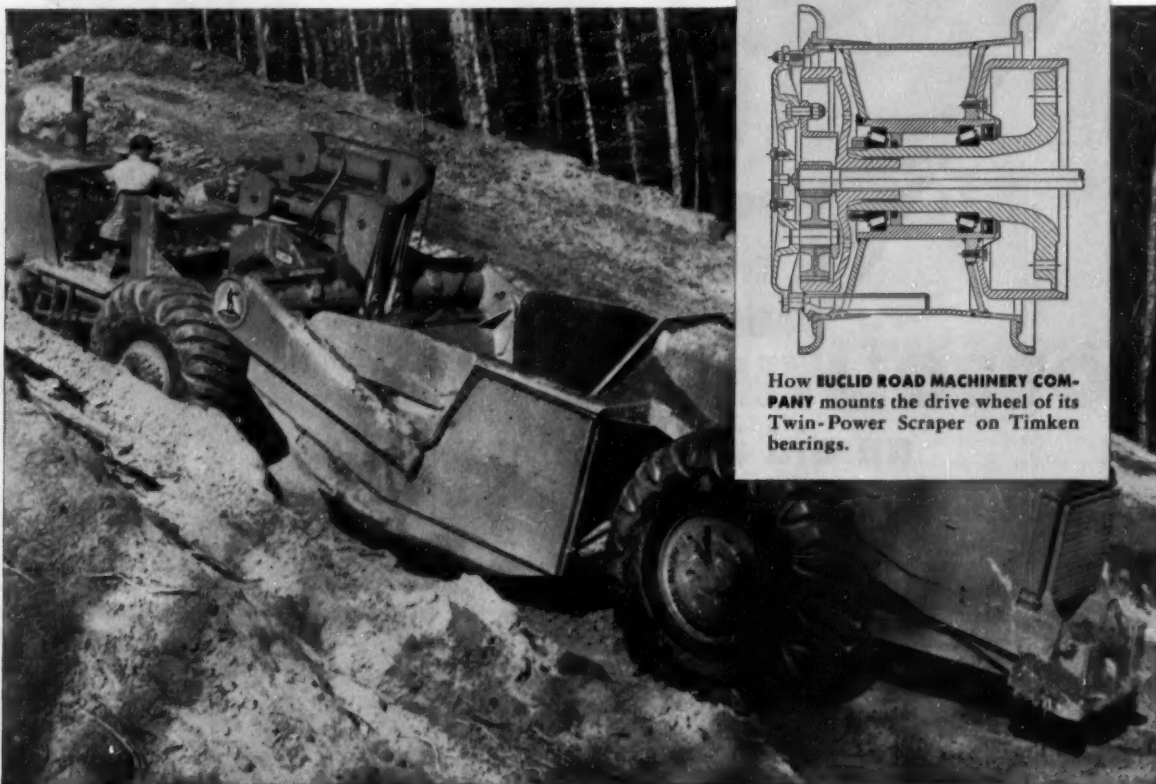
On tough applications like this,

the superior quality of Timken bearings really pays off. For example, in order to get the best steel possible we make our own. No other bearing company in the U. S. A. does.

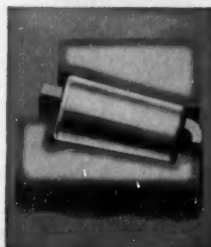
When you buy or build construction machinery, make sure the bearings are stamped with the trade-mark "Timken". The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".



This symbol on a product means its bearings are the best.



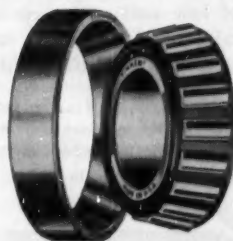
How EUCLID ROAD MACHINERY COMPANY mounts the drive wheel of its Twin-Power Scraper on Timken bearings.



#### GREATER LOAD AREA

Because the load is carried on the *line* of contact between rollers and races, Timken bearings carry greater loads, hold shafts in line, wear longer. The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis Timken steels.

**TIMKEN**  
TRADE-MARK REG. U. S. PAT. OFF.  
**TAPERED ROLLER BEARINGS**



NOT JUST A BALL ○ NOT JUST A ROLLER □ THE TIMKEN TAPERED ROLLER ◐ BEARING TAKES RADIAL AND THRUST → ◑ LOADS OR ANY COMBINATION ☼